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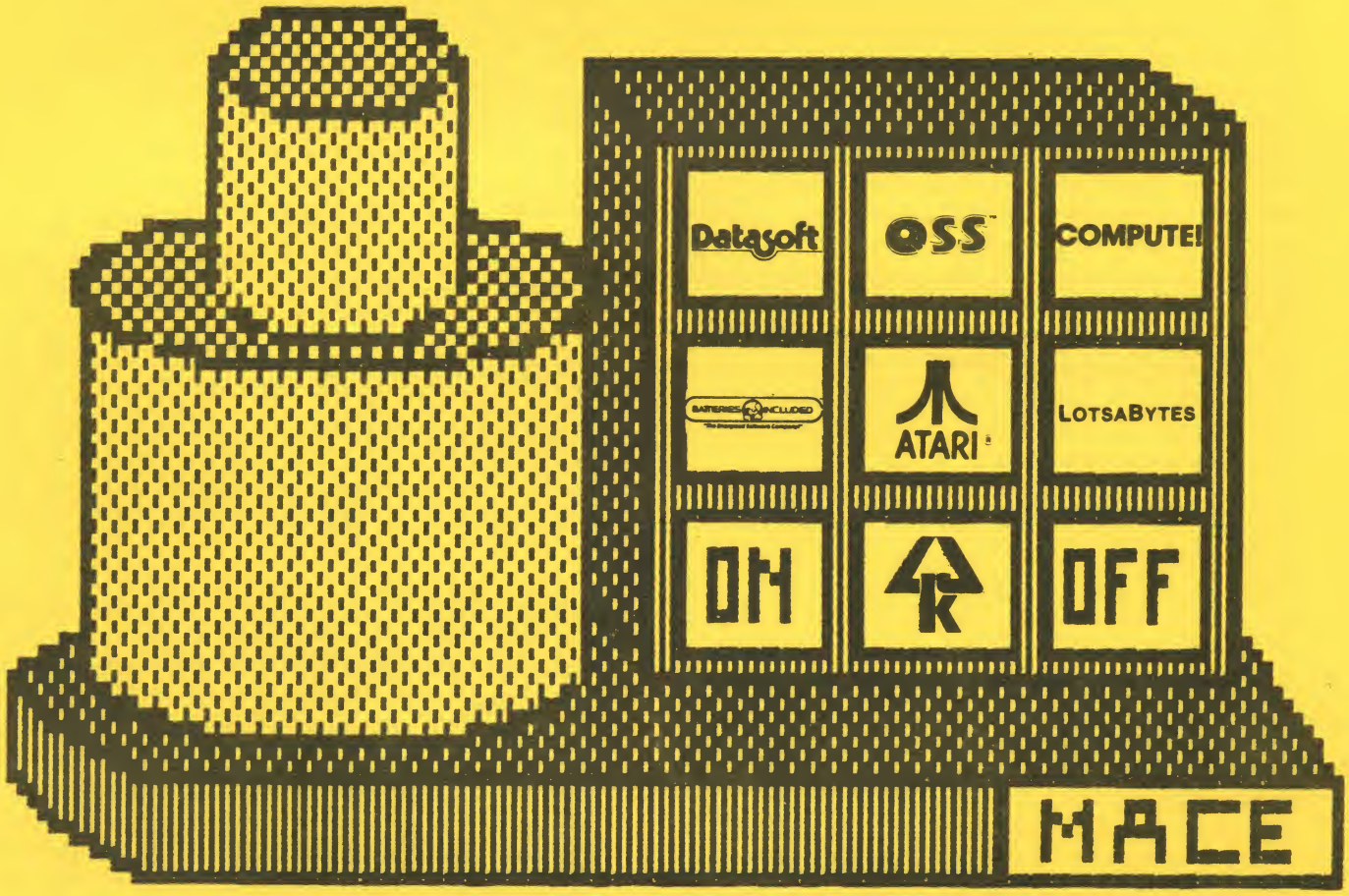
"Devoted Exclusively To The Atari Computer User"

WORD PROCESSORS



FOR THE ATARI

Published by the Michigan Atari Computer Enthusiasts

FIRESIDE CHAT

Well, I talked to a proud ST owner on the phone the other day. I'm happy to say he's quite pleased with his machine. Of course, the only drawback so far is the lack of software, but it's coming! The initial software package that comes with it does have a terminal program but (who else but Atari?) it is a read-only terminal. By that I mean there is no capture or download feature. Anyhow, I was reading a little about the ST in <u>Info World</u> magazine. They seem to feel it is a nice machine and should prove interesting against the Amiga. Neither machine has a perfected O/S and the Amiga is not yet commercially available. The holdup on the ST's O/S is size. The ST operating system, on disk, is about 210K. The area reserved in ROM is in the 190's. Once it is modified to fit, the ROM O/S will be available for a cost of $25.00 (according to <u>Info World</u>).

Now then, for the 130XE: both MACE BBSs are now running the 130XE. Also, as I'm sure you've noticed, we use one here at the meeting. As soon as the club gets its BASIC XE cartridges we'll have more info to pass on about them. We are also starting to experiment with SpartaDos Construction Set which supports double density and Ram Disk.

Moving on to other things, as you you all know by now, I've been dabbling around with a PC BBS. The reason is that I have an AT&T 6300. And the reason for that is that I work for AT&T. Good employee offers are hard to turn down! I have been experimenting with an Atari file area on the PC and so far I have had some luck with HomeTerm. Seems that HomeTerm will support the XMODEM protocol fine but, on a large file around 200 sectors or so, the BBS will time out waiting for the Atari to finish saving. That is because each time HomeTerm saves its buffer it re-reads the entire file. I've sent E-Mail, via Delphi, to Russ Wetmore asking about this but as of this writing I haven't received a response. The BBS uses dual floppy drives, 360K each, and a 10 megabyte hard drive. So, as you can see, I will have more than enough room for an extensive Atari library.

A little reminder about the disk library coupons: the club will only accept coupons that are not more than 60 days old and they must be signed by an officer of the club. Nothing else will be accepted in their place. <u>No exceptions.</u> Also, let's be a little more realistic about expecting coupons for dragging a couple of chairs over to the side after the meeting. If you are going to set up or stack chairs, check in first with the Program Coordinator so that he knows you'll be working. When you're done, you can go back and get your coupon. Some people have been taking advantage of the situation and asking for coupons for several kids in one family, when it's obvious that the kids aren't big enough to haul the chairs around. Don't spoil it for everybody else.

Kirk

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Submissions to the Journal can be mailed to the PO Box, uploaded to the MACE BBSs, any officer's BBS, the SuperBoard (543-9805) or uploaded directly to the editor at 646-4455. Where possible, submissions should include a disk or tape file in AtariWriter or similar format and a working copy of the program. Specify format for screen dumps (AtariArtist, Koalapad, etc.). Authors whose submissions are published are entitled to a certificate good for a free disk or tape from the MACE library. Deadline for submissions is the first of each month.

PROCESSING WORDS
ON THE ATARI

By Ann McBain Ezzell

The first word processor I ever used on my Atari was Scriptor, which I spent six hours typing in from COMPUTE!. It was written in BASIC, so it was slow, and the files weren't compatible with anything else, but the price was right, and it let me handle simple correspondence without too much trouble. When Christmas came around, I found AtariWriter under the tree, and have been happily keying away with that ever since. It didn't fully support my Gemini-10 printer, but I could access most features by using the Control-O command. Recently, however, I received a review copy of Batteries Included's PaperClip (courtesy of MACE EAST Sysop Mike Lechkun, who made the supreme sacrifice of attending the 1985 Summer Consumer Electronics Show in Las Vegas.)

Seeing what PaperClip could do started me thinking about other word processors for the Atari, and I called OSS to ask for a review copy of their Writer's Tool. They obliged, and I was trapped in the eternal triangle: one writer and two fantastic word processors. I decided to make my last Journal a special word processing issue, and was immediately beseiged by thousands of MACE members begging to be allowed to review their favorite products.

Herein, therefore, are reviews of seven Atari word processors (impartially presented in alphabetical order). Each has its strengths and weaknesses; it will be up to you to decide which features are most important to you. To head you in the right direction, we will start off with one person's opinions of what the "ideal" Atari word processor should do. You may or may not agree, but it should give you some ideas.

WHAT EVERY ATARI
WORD PROCESSOR SHOULD DO

By Danny M. Adkison
Oklahoma State University

It is really not that surprising that there are so many word processors for the Atari (or any computer for that matter). As documented by Consumer Reports, word processing is what most owners want from their home computers. So, the market has responded. Having used numerous word processors for everything from one sentence letters to 25 page papers, I have developed a list of things that I think every good Atari word processor should be able to do. So far, not one does them all.

Most word processors, even free ones that come with hardware purchases, do most of what is required of a word processor. They permit the user to set margins, control line spacing, center lines of text, and even right justify text. In fact it is often surprising what the inexpensive programs will do. Some of these "no-frills" programs are even desirable for users who use their computers too infrequently to remember a long list of commands, and just want to sit down and type out a letter (as they would with a typewriter).

But for those who regularly do word processing or have a particular need, a "no-frills" product quickly gets to be too limited. So, if you are going to do any serious word processing, be sure the program will do what you want it to. If you are new to word processing, you should be aware of some things that most users probably learn about the hard way (by returning to the store to buy a different program).

Here are some things that I think every Atari word processor should do. I cannot elaborate on every point, but I think those who have done a lot of writing on the computer would agree that these are "musts". I call them "musts" in the sense that given the advances that have been

made in what even the most inexpensive word processors can do, these are the things that can make a program stand out as worth the purchase price.

First, there are the obvious functions, some of which were mentioned above. You should be able to vary margins, line spacing, indentation, page length, and other general "set-ups" that you would normally do with a typewriter. But even here there are some important differences. Most word processors will permit you to set the right, left, top, and bottom margins. But what if you want to change margin settings within the document? Anyone who has ever written a term paper knows that this is going to be necessary because the paper is usually double spaced, but long quotations are single spaced. Some word processors (e.g. Bank Street Writer) let you set the margins, but they remain set during the typing session. That is a major drawback. Others (e.g. AtariWriter) let you easily change the margins at any time.

Second, Atarians have a problem that all word processors should address. I'm referring to the keyboard "click." Of all my suggestions, this comes closest to being a particular quirk of mine, but anyone who works at night while others are sleeping will appreciate a "no click" option. SpeedScript 3.0 turns the click off, but relies on the TV speaker for a "beeping" sound when the keys are pressed (or none if the volume is turned down). Some, like HomeText, have a click/no click toggle.

My third suggestion for every word processor would be a "quasi-80 column preview" of the document. Atariwriter has a print preview option that lets you see how your document will appear on paper. A variation of this is to draw a tiny sheet of paper on the screen and represent the words with lines (as do HomeText and Word Magic). That is better than a 40 column print preview (SpeedScript 3.0). This feature is particularly important when typing tables or items aligned in columns.

Do you ever need to type something in the following format?

> 1. If you teach and type your own questions or have any other need to type in this manner your work will be made much easier by a function that permits offsetting such as you see here.

This is referred to by various names (offsetting is one). SpeedScript 3.0 has a variation of it (outdenting). You may not use it much, but without it you literally have to count the characters in each line and do the indenting manually, which can be very frustrating.

If you have ever done any programming, you know how valuable REMark statements can be. Well, the same is true when typing a manuscript on a word processor. There will be times when you want to leave yourself a message (such as "Delete this paragraph if the paper is too long," or "Find footnote for this sentence."). It is a small help, but every word processor should do it; it's a natural adaptation to how people write. After all, when writing on paper we usually leave ourselves notes in the margins.

Finally, let me briefly list a few additional "must" features. Every word processor should do word counting. It should also prompt you in those critical moments when haste can mean the difference between saving or losing your document. Some programs have too many prompts, but you should not be allowed to "erase" your document from memory or disk, or overwrite an old document without being given a chance to change your mind. You should also be able to type about 10 double spaced pages without having to chain to another file. And although most programs will actually brag about being able to word-wrap, there will be times (usually when typing tables or items in columns) when you may want to turn this feature off.

What about underlining, footers, headers, page numbering, word search and replace,

ease of cursor control, tabs, and deleting and inserting blocks of text? Frankly, you should be able to find these items on most word processors, but check before you invest. And if you find one that does them all, please let me know!

ATARIWRITER

Atari Corp.

Reviewed by Russell Crum

AtariWriter is an excellent basic word processor that provides all of the features essential for the occasional to frequent author. It is contained in a plug-in cartridge, which means no danger of getting your disk wiped out. It will support both disk and tape storage of files. At least 16K of RAM is required to operate the program. What AtariWriter does, it does quite well.

Exactly what can you do with AtariWriter? It provides for all of the basic amenities needed for creating, editing, storing and printing a document. This includes erasing text (individual letters as well whole sections of text), inserting text, moving sections of text, and copying sections of text (duplicating) to other locations within the document. Search and replace of text strings may also be done.

Other rather fundamental features include the ability to center text as well as block it at the right side of the printed line (although not both functions on the same line). In addition, features such as automatic page numbering, justified right margins, headers and footers (which may include the page numbering), merging of other text files, indentation of paragraphs, and margin changes throughout the text are available.

All of the above features are available to you regardless of the printer that you have. There are other features that AtariWriter has that depend on the printer used as to their ease of use. Features such as changing the characters per inch, lines per inch, bold face, underlining, subscripts, superscripts, font changes, etc. are easily available if you have one of the printers that AtariWriter supports. These printers are: 1025, 825, 820, and 822 (all Atari of course!).

If you do not own one of these printers, you have two choices. Atari did provide a code (CTRL-O) that can be used to send special instructions to the printer. The cumbersome thing about using this is that the special code must precede each decimal printer code number that is being sent to the printer. With three digit printer codes, this adds quite a mess to your text when editing. (This special code may not be used to access special printer characters, however. This equivalent to BASIC's CHR$ function is not available except for decimal values in the printer control code range.) The other alternative is to acquire a printer driver program that is loaded in from disk which will allow you to use the standard AtariWriter codes to invoke the special printer functions. The now defunct APX had one; also see ANALOG Computing, July 1985. Obviously, your printer must be capable of a particular function in order to use it! One feature of AtariWriter that many of us cannot use due to printer limitations is the double column printing. AtariWriter relies on the printer's ability to do reverse line feeds to accomplish this.

To complete the complement of features available, there are also some DOS functions. In addition to the necessary SAVE and LOAD, you may view the disk directory, delete a file and format a disk. In order to use these functions, you must leave the editing screen to get the menu (your text is not lost, so don't worry).

When creating a document, you work with the editing screen. This screen initially shows all of the default values for printing (margins, line spacing, etc.). The normal mode of the edit screen is insert (i.e. any text typed is inserted at the cursor position). It is not possible to switch to a replace mode. This can be an irritant when you just wish to replace

some existing text. In that case, the old text must deleted and the new text inserted in two separate steps. When the end of a line is reached, no need to worry. AtariWriter automatically "wraps" the line around to the next line when it cannot fit a complete word on the line (words will not be broken up). This is nice, but also very frustrating if one needs to lay out a document in columns such as I did with my Boy Scout troop roster. There is no indication on the screen where the word wrap occurs. With the 40 column screen display, TABS are useless for something like this! This type of dilemma can only be solved by either printing the document to see the corrections needed or using the print preview function.

The print preview function formats your document and displays it on the screen the way it will look when printed (almost). The exception will be those special printer codes I told you about earlier. They will all be displayed, which messes up the format somewhat. Anyway, the document is displayed in printed format and you can side scroll the screen to view the full width of the document. No editing can be done in print preview and you may only page forward through the document. You can, however, elect which page to start on and how many pages to preview.

There are other more advanced features available such as number indentations of section headings and mail merge. See ANTIC March 1985 for mail merge. I really think that these advanced capabilities are inconsistent with a basic word processor such as this.

The manual that is supplied is pretty good. It is divided into a tutorial section and a reference section. There is also a quick reference guide which summarizes the commands. One of the handy things also is that the manual contains an index!!

AtariWriter is generally easy to use as long as you don't have anything too complicated to do. There is some inconsistency in the key codes that is difficult to remember. For example, some functions use the CONTROL key with another key; others use the SELECT key while others use the OPTION key. The OPTION key is a particularly poor choice due to its proximity to the SYSTEM RESET key on the 800XL.

AtariWriter can currently be had at some very reasonable prices (check the MACE advertisers). Atari has announced an improved AtariWriter to come out this fall, but no details on it are available. If your word processor needs are not too sophisticated and only occasional, Atari-Writer may be just what you need.

ESI Writer

LotsaBytes

Reviewed by C.M. Hostetler

ESI Writer is LotsaBytes' contribution to word processing. It's advertised for $19.95, and I must admit it is worth the money. To get the bad news out of the way, allow me to voice my discomfort with the package early. ESI comes with a 27 page manual that begins:

> "Dear Customer:
> This Manual is very complete!
> You will notice that there is
> No table of contents, index,
> page numbers, or reference card.
> THIS IS INTENTIONAL!! ..."

Please understand that I have written manuals myself, and know what a pain finishing touches can be! But for yours truly the above statement is a grave offense to the very people the writer is trying to please: his customers. Had I had the opportunity to see the above statement before I purchased ESI, the likelihood of money changing hands would have been substantially reduced. Now, to be completely fair you should know they follow the above statement with an explanation that you will learn the system like "an expert" if you don't rely on such obvious crutches.

Well, I commend the program in that it is "easy" to use, but I still don't get any kicks from thumbing through that manual page by page and in many cases, line by line, to find once again the codes for underlining, printing on every other line, etc. Please note that I have used ESI for almost six months and have printed (or been fortunate enough to have printed for me) some 15,000 words. Now to some that may not be a large amount (it's about 60 pages), but that does include approximately 40 hours in front of my screen. As some of you know I have a Doctorate in Law; with that I must ask, if it's still a pain for me, what must it be like for a high school student trying to produce the occasional book report? I say this with a partial purpose of hope that the folks at LotsaBytes will see this and have someone take the few hours necessary to produce the not so superflous index, table of contents, and maybe even a reference card!

As I've hinted, the program IS useful. One of its nicest features is that any time you seek the main screen, which has 33 very useful commands, all you need do is punch CTRL-H (for HELP). You can do this without losing your place, or any text. By pressing the ESCape key you're returned to where you left off. Saving and "G"etting files is also only a CTRL and a key away. Files do merge in the text buffer, so care is called for.

You can "format" a textfile for 8 & 1/2 x 11 or 14 inch pages, headers and/or footers, etc.; move text by line or paragraph; review your text by page both "U"p and "D"own,"T"op and "B"ottom; adjust your margins (both top and sides); etc. There is room for graphics insertion and changing printer control codes, too.

Another nice feature is the program's default to the "Edit text" mode. You can simply begin typing from the "H"elp screen (this is the screen that is displayed when the program is booted) and, as Mr. Gleason has occasionally been heard to exclaim, "away we go". The program also allows for "right justification".

There is a counter showing the number of characters left in your text buffer (memory). This is constantly displayed on the bottom right of your screen.

At the time I bought ESI I was attracted by its claim to "out-perform" programs costing over $100.00. I'm pretty certain it does, from what I've seen of the competition, at least prior to "Paperclip". It does require "XL Fix" or a similar program to print from my 800XL to my Atari 1027.

P.S. Note that for the past few months Ms. Ezzell has apparently not had too many difficulties converting my ESI files to AtariWriter format.

[Indeed, ESI Writer files are compatible with AtariWriter, but each line ends with a carriage return which must be removed before using an ESI Writer file in another word processor. -Ed.]

MACE

NEW USER FORUM

7:30 P.M. - 9:30 P.M.
Southfield Civic Center
Parks & Recreation
Meeting Room

[illegible] 1985
How to use MACE
library disks ...
AUTORUN's & their use

October 28, 1985
How to use a BBS
AMODEM / MACE Terminal

November 25, 1985
An Introduction to
ATARI BASIC Language

[illegible] Call Tom Sturza
Between 6-10 P.M.
477-2345

LETTER PERFECT

Version 6.04
LJK Enterprises, Inc.

Reviewed by P.R. Wheeler

Letter Perfect is a word processing system designed for use with Atari computers with a minimum of 32K of memory and at least one drive. It will enable you to produce any type of printed text, from letters to reports, memos to lists. You can edit your text, delete sections or words, insert lines or characters, move blocks of text, and search for special words with the ability to replace. You also have the ability to format the printed version of your text and to change that format within the text. Letter Perfect is capable of merging text files from another system, such as Data Perfect. This allows you to produce individualized form letters by including whatever information you want from the database. Letter Perfect comes with a spell-checking dictionary version of Spell Perfect.

When the program is first run, you select your video control: 40 column, Bit-3 80 or Austin 80. The default is 40 column. The next selections are the Disk Defaults for the file drive and dictionary drive, and the drive density (single or double). The next selection is setting up your printer driver. There are built-in options for nine popular printers. If you choose a non-listed machine, the disk provides an easy system for setting up your own specifications to make your printer function properly. Letter Perfect will drive letter quality or dot matrix printers, including those with proportional spacing. Once the configuration has been selected, it can be saved to the disk and on all future boots you will go directly to the main menu. If you ever wish to change the configuration, merely hold down the ESCAPE key while booting.

While it is true there are many commands to learn (59), they are very easy to use. For BOLD print CTRL-B, for CENTER CTRL-C, SEARCH CTRL-S, REPLACE CTRL-R, etc. All deletes require (3) keys: CTRL-K(ill) followed by A, will delete AFTER cursor, B will delete BEFORE the cursor, N(ew) will delete ALL, etc., and all K(ills) require a confirmation before the task is actually accomplished. All of these commands turn the Letter Perfect into one of the most powerful word processors available for the Atari.

And saving the best part for last, the price is now less the $40. I have gone thru several versions of Letter Perfect and this latest (6.04) is almost the PERFECT word processor. The power and speed of LJK's products come from the fact that they do not use the Atari format, but they do, however, provide an "Atari Utility Disk" that can convert between LJK format files and Atari format files. At this point LJK is in a holding pattern as to whether or not to update their programs for the 130XE, until they feel Atari's directions are firm in this the last of the 8-bit computers.

PAPERCLIP

Batteries Included

Reviewed by Ann McBain Ezzell

For the occasional letter to Aunt Mildred or note to the milkman, you can use just about any word processor - you can even use PRINT statements from Atari BASIC if you are desperate enough. Once you start getting serious about the printed word and the format of your creations, you really need a word processor that is convenient to use and that supports the capabilities of your printer. If you are thinking about buying a word processor, either your first one or as an improvement over your current one, PaperClip from Batteries Included might be just the thing for you. It is easy to learn and use, configurable for just about any printer, and has several features not generally found in medium-priced word processors.

What's so special about PaperClip? Let's start with the editor. PaperClip is based on Clinton Parker's FLASH editor - the one used in ACTION! Cursor control is quick and easy; you can move ahead or back by character, word, line, or screen, or skip to the head or end of the text. You actually have two independent text windows at your disposal and can easily move between them. Text can be loaded into either window and saved or printed from either window. These dual text windows are marvelous when you are working on a document and need to reference another one: you hit SELECT to open up the second window, read in your new document, then you can jump back and forth between the two documents, editing at will. You can even "cut and paste" portions of text from one window to the other.

PaperClip can be individualized to fit your needs and tastes, and you can save your specially configured version to another disk. You have control over the following editor features: cursor movement with or without control keys, single line or entire screen horizontal scrolling, left screen margin, right screen margin (line length), alarm bell, size of editing windows, Auto Save function, attract mode, keyclick (for XL users only), and screen colors. (You can also save printer commands and Macros; more about these later.)

I find that being able to move the cursor without having to use the CONTROL key is very convenient, although I occasionally forget and move the cursor when I intend to type a hyphen or asterisk (you must use the control key to get the "normal" functions for the arrow keys).

The right screen margin can be set from 15 to 132, so you can in effect have an 80 column display, although of course only 40 columns will be visible at any one time. This is especially good for setting up charts or columnar data, because you can see exactly how the items will line up when printed. If your line length is greater than the 40 column width of the screen, you can choose to have the entire screen scroll to keep the cursor visible, or just the line containing the cursor.

PaperClip's Auto Save function can be activated to save your text automatically after a chosen number of keystrokes (between 100 and 32000) to either drive #1 or #2. It will alternately use files named PCTEMP.1 and PCTEMP.2 for extra backup security. Even without the Auto Save function in effect, you can save to these temporary files at any time by pressing CTRL-SHIFT TAB.

Editing your text is a pleasure with PaperClip. The key repeat rate has been speeded up, so you can send the cursor zipping over the screen at a comfortably fast pace. You can delete single characters, lines, or blocks of text. You can delete to the end or

top of the file from the current cursor location, and "undo" that deletion if you change your mind (as long as you haven't moved the cursor). Deleting lines or to either end of the file fills the paste buffer, the contents of which can then be placed anywhere in your text. Designated text blocks can also be moved or duplicated, either within the current window or to the opposite window.

There are some problems with editing in Version 1.0 which have been fixed in Version 1.1. A major bug in Version 1.0 would often reposition the cursor several lines up the screen when you were deleting characters from a word which had wrapped around. Version 1.1 has also added a 20 character type ahead buffer, eliminating loss of characters from fast typing. You do have to be careful when deleting characters in the middle of the text, though, because the deletion process is slow and you can easily store more "delete" characters in the buffer than you want.

Like any self-respecting word processor, PaperClip allows you to search your text for a character, word or phrase and replace it if you wish. You can do a "global" substitution, which will change every occurrence of the string, or step through each individually and decide if you want to make the change. You can even do up to six global substitutions simultaneously.

PaperClip's "search and replace" has a couple of special features that you might find useful. If you have "included" files within your text (*i.e.* indicated files to be read from disk and inserted into the text), PaperClip can be made to perform global substitutions on the included files as well as the main text. The included files will be read in, corrected, then rewritten to the disk. Unlike AtariWriter, which will only search for normal characters, PaperClip can find and replace even the special printer codes (except for carriage return), so that it is simple to do things like change all boldface text to italics, or find all occurrences of centered text. Appendix C of the manual contains a printer control code equate table, showing you what keystrokes to use to get the various special symbols used.

PaperClip has several other editing features that you might find useful. With a simple combination of keystrokes, you can instantly transpose adjacent letters or entire words, change lowercase letters to uppercase (or the reverse), or get a count of the number of words (actually the spaces between the words) in your document. You can also toggle between "Insert" mode, which squeezes new text in at the cursor location, pushing following text towards the end of the file, and "Overwrite" mode, which lets you replace existing text (like the Atari BASIC editor). Being able to overwrite your text is very handy if you are editing charts or tables, because you can make changes without disturbing the alignment of any other entries on the line.

"Tags" allow you to mark a place in your text so that you can return to it quickly. Each tag is represented by a character; once a tag is set, you can return to it by pressing CTRL-SHIFT 6 and specifying the tag i.d. character. The tag is lost if the line containing it is edited. Tags are useful if you are working on a long document and want to be able to find specific areas quickly. You can also use CTRL-SHIFT F to "find" a string in your text.

A good editor is important, but of course the main reason for using a word processor is to be able to print out copies of your text. The PaperClip disk includes configuration files for more than 20 printers, plus 4 general printer files. These

configuration files contain information about the printer codes for selecting fonts, controlling boldface, italics and underlining, determining line spacing, and so on. The chances are very good that a file for your printer is included; if not, or if you would like to make some changes in the codes, there is a separate binary load program on the PaperClip disk called PRTR.COM which will take you step by step through creating your own configuration file. A printer configuration file can be loaded at any time; if you have two or more printers, it is simple to switch between them without disturbing the text.

Loading a printer file will automatically set default values for page margins (as opposed to editor screen margins) depending on the chosen pitch (characters per inch); you can also set the page margins within the text. PaperClip's formatting codes allow you to set all four margins (top, bottom, left and right), plus set the page length (up to 255 lines), set the printed lines per inch (6 or 8), set the line spacing (single, double, etc.), block text to the right margin, center text, and right justify text. If your printer will support it, you can use "microspacing" to spread out the blanks caused by right justification and give your copy a more professional look.

With PaperClip, your pages can hold up to three header and three footer lines. Headers and footers can appear on any line within the top and bottom margins, and can be set up to include page numbers. In double column printing mode, headers and footers can only appear within the margins of the first column.

The command to force a new page has an interesting twist. Suppose you want to include a 10-line chart in your text and make sure that it isn't split over two pages. Rather than rechecking its position each time you edit your text, you can place CTRL-T10 at the beginning of the table and PaperClip will force a new page only if there is not room for the entire table on the current page. (PaperClip will also perform an unconditional page eject.)

If your printer supports these features, PaperClip will let you print boldface, italic and underlined text, change pitch, and print subscripts and superscripts. To ensure that two or more words will not be split at the end of a line, you can separate them by a "hard space" and PaperClip will treat them as a single word.

Two more conveniences for formatting your text are the automatic indent command and print tabs. You can set the number of spaces to indent and the number of lines to skip between paragraphs, then insert a CTRL-P character at the beginning of each paragraph and the program will take care of your indentations for you. (You cannot use this feature to skip lines between paragraphs in double column printing.)

Print tabs allow you to define two "tab maps" containing tab stops on columns from 1 to 128. When you enter tabular data and indicate the desired tab map, PaperClip will format the line so that the data will be printed in the proper columns. I found this method somewhat more confusing to use than some other tab methods I have seen.

A nice touch that could be very useful for long documents is the ability to write comment lines which are ignored at printout time. I used this feature while writing this review so that I could make notes to myself without having to worry about going back later to take them out.

Now we come to what has been the most

frustrating feature of PaperClip for me: double column printing. Most users will probably not have much use for this, but as MACE Journal Editor I use double column printing a lot. AtariWriter will print in double columns, but only on a printer with true reverse line feed like the Atari 825. PaperClip formats the text internally into two columns, then combines two half lines and prints them in a single pass.

There are some rules and restrictions for double column printing listed in the manual. You learn how to set the margins and that you must use single spacing, but not that you cannot use the automatic indent command to skip lines between paragraphs. (I learned that the hard way.) If you want a space between paragraphs you must insert a carriage return. Once you know the rules, printing double columns with Version 1.0 goes smoothly.

HOWEVER... in fixing a minor cosmetic bug in Version 1.0 the authors seem to have created a functional bug in Version 1.1. (We've all had days like that.) If you try to use double column printing with Version 1.1 you will find that the last line of the first column is repeated as the first line of the second column. After much experimentation I discovered a kludge. You must set the top margin to 0 (not 1) and the bottom margin to 55 (or one more than the number of printed lines on a page) BEFORE you set the margins for the second column. When you align the paper in your printer, put the print head about 1 inch down from the top of the page and everything should be just fine.

Once you have formatted your text, PaperClip gives you a chance to see it as it will appear in printed form. An excellent PRINT PREVIEW feature displays each page of your text in Window 2 and lets you scroll through it vertically and horizontally to check the final format. In Version 1.1 any text printed with boldface, italics, or underlining will appear in inverse video. Double column previewing takes a while to format, especially after the first page, but regular print is ready with amazing speed. By watching the status line at the top of the screen, you can tell exactly how many lines of text you have in your document. This feature can prevent a lot of wasted paper and time by showing you what your final copy will look like.

There are two ways to send text to the printer. CTRL-SHIFT ESC will print one copy of each page without pausing between pages. CTRL-SHIFT O lets you choose the starting and ending pages, number of copies, and whether or not to pause between pages. You can also choose to print to the disk drive or a Null device (used to create a Table of Contents). Printing can be aborted by hitting ESC. When printing to disk you can strip off the control codes if you wish. This is a good way to prepare files for electronic mail transmission.

Included in PaperClip's "special" functions are the ability to: do simple mathematics within your text, create a Table of Contents, work in "typewriter mode", and define up to 4 special printer commands. With lots of confusing control codes, you can induce PaperClip to add the service charge to your Sears bill and print out the total in your letter explaining that the Post Office must have lost your payment. Big deal. The Table of Contents feature could be useful, but I would rather they had included an Indexing utility - and used it on the manual. (There is a separate program available on some BBSs which will create an index for your PaperClip documents.) Typewriter mode strikes me as another big yawn - the manual suggests you use it to address envelopes. You can type one line of up to 130 characters and send

it to your printer when you hit RETURN.

More useful are the user defined commands, which allow you to access special printer functions not normally supported by PaperClip. Your printer might have an alternate font; you could define a command to select that font. Each command can contain up to 6 characters. You could also use these commands to print some of the special characters (chemical symbols, foreign letters) available on your particular printer. The used defined commands are set up with the PRTR.COM program used to create new printer configuration files. It is unfortunate that you are limited to only four commands, because many printers have lots of special characters which might be needed in a lab report or scientific paper. If you really need to access these special printer characters, PaperClip may not be the word processor for you.

PaperClip keeps track of available text buffer space in a somewhat unusual way. Rather that tell you the number of free bytes available, the always present Status Line at the top of the screen shows the number of free "lines" left. Just what kind of lines are they talking about - screen lines or printer lines? It turns out that the number of free lines is based on the screen line length. When you boot up Version 1.0 on a 64K 800XL you have 790 free lines. You get 432 lines on a 48K 800. With the standard 40 character screen, this translates to 31,600 bytes for an 800XL and 17,280 bytes for an 800. (For the sake of comparison: AtariWriter booted with DOS 2.0 leaves 20704 bytes free on either machine.) By my calculations, you should be able to fit just under 15 double-spaced pages in an 800XL and about 8 in an 800 (assuming 80 column printing). Version 1.1 gives you an extra 80 bytes of memory. Of course, if you fill your text buffer, you will not have room to perform a PRINT PREVIEW.

So what do you do if your *magnum opus* won't fit into 15 pages? You take advantage of PaperClip's special file commands. You can chain files together with the "Include File" command. When PaperClip encounters this instruction, it reads in the indicated file from disk and incorporates it into the printout. You can chain up to three files in this way.

You can also create a Batch File with sequential "Include File" commands for the files to be printed. The Batch File can contain other commands to set margins, change fonts, and so on. You can create a two layer nested Batch File by making a Batch File of your other Batch Files. If this still doesn't give you enough space, remember that it's not a good idea to put all your bytes in one batch anyway.

The Verbatim File command allows you to include data directly from a disk file and print it unchanged. You can use this to mix graphics with your text, but you must format the Verbatim file properly for your printer. There is a Graphics Dump and Merge Utility on the PaperClip disk which will do this for you. When you include a Verbatim File, PaperClip cannot keep track of the number of lines used, so page breaks will not be accurate. The manual suggests forcing a form feed after a Verbatim File, assuming that your printer supports form feeds.

A simple form of Mail Merge is available with PaperClip. You can create your own data file or merge data files created with SynFile+. To use Mail Merge, you place a special Include character wherever you want to read text strings into your text.

If you tend to use the same words, phrases or keystrokes over and over, you might want to use PaperClip's

Macro capability. You define each Macro by assigning it a number, letter or other character, then write the Macro file to disk. You can load the file in when needed (although it does wipe out your text buffer, so be careful) or save the Macros along with the editor and printer configurations when you create a customized version of PaperClip. Macros are not only convenient to use; it's fun to watch the computer type by itself when you call up a Macro.

The PaperClip disk contains Help files for the Editor, Printer and File (Disk I/O) functions. You can load these files into Window 2 by pressing CTRL-SHIFT 1 and then H or, on an 800XL, the HELP key. Unfortunately, these files share some of the manual's inaccuracies. If you want to invest the time, you can edit the Help files and rewrite them to your work disk. I know of one user who put page references into the Help files so that he could easily find the relevant sections within the manual.

That's about it for PaperClip - all that's left is to describe a few other programs on the disk and mention a bug or two. PRTR.COM, as described above, lets you make customized printer configuration files for use with PaperClip. You can also load in one of the files that come with the program and check the codes for that printer.

AWTOPC.OBJ is a binary load file that converts AtariWriter files to PaperClip format. It does a strict translation of the AtariWriter codes, some of which are not actually needed in the PaperClip file. It also ignores any CONTROL-O codes, so you will have to fix these yourself if you rely on them. The only problem I found with it is that it doesn't change the automatic page numbering code properly (it produces "n" instead of CTRL-N). AtariWriter files can be read into PaperClip without conversion, but the printer codes will not be correct.

HIRESDMP.BAS is the Graphics Dump and Merge utility. It will produce Verbatim files for inclusion in your text and acts as an independent graphics dump. The following picture formats are supported: MicroIllustrator (Koala or Atari Touch Tablet), Atari Light Pen, SynTrend, B/Graph, Fun With Art and Atari Paint. There are 7 graphics configuration files on the PaperClip disk; if your printer is not supported you can create your own. The program works quite well, but there are some errors which are not trapped properly. I also found that the image created was printed about a half inch too far over to the right of the page to be centered with the text.

As you can see from the length of this review, PaperClip has a LOT of features. Unfortunately, it also has a few problems. There are a number of typos and/or downright errors in the manual, which also suffers badly from the lack of an index. The Table of Contents is pretty complete, but not terribly convenient to use. One of the appendices lists all of the PaperClip commands; these would have been better put on a separate reference card.

It is possible to lose your text without warning in at least three ways: hitting SYSTEM RESET, loading Macros, or changing screen margins. Each of these is mentioned in the manual, but I feel that a program should warn you before destroying your text. Especially on the XL machines, it is too easy to hit SYSTEM RESET when reaching for the OPTION key.

This review was printed on my Gemini-10 printer because of another omission in PaperClip: it does not support proportional fonts. Perhaps the authors felt that not enough printers have proportional fonts to

warrant their support, but those of us who have that capability would like to be able to use it.

Version 1.0 of PaperClip seems to have been released before its time. There were at least 14 fixes and changes made for Version 1.1. Version 1.0 is usable, but it suffers from the lack of a "type ahead" buffer and the tendency of the cursor to go wild when deleting. Version 1.1 seems much healthier than 1.0, but it is irksome indeed to have to lay out $10 for an update so soon after the initial release of a program.

A word about PaperClip's protection scheme: You can save a personalized version of PaperClip because the disk itself is not copy-protected. (If you want to dedicate the space to it, you can put a copy of PaperClip on every one of your text file disks.) The program is protected by a "key" that plugs into joystick port 2. PaperClip will load and run without the key in place, but only as far as producing the editing screen; the cursor will be "dead". Having the key sticking out of the front of an 800 or 400 is somewhat inconvenient, but causes no trouble at all tucked away at the side of an XL machine. I like this method of software protection; it lets you make as many personal backup copies as you need, yet still protects the company's interests. (If you lose or destroy your key, you can get another from Batteries Included for $35 and your original bill of sale or owner registration card.)

In spite of the bugs, even Version 1.0 is a powerful and easy to use word processor. If you can get your hands on Version 1.1, all the better. It's true that PaperClip is more complicated to use than, say, AtariWriter, but it more than makes up for it in added features. It's so nice to be able to get a disk directory from either drive, even if one is running in double density and the other in single. The ability to use virtually any printer is a big plus. Best of all, the editor is a joy to use. Now if Batteries Included would just come out with a built-in spelling checker...

NEWS FROM BATTERIES INCLUDED

According to an article on CompuServe by Michael Reichmann, Vice President of Development for Batteries Included, the planned BI-80, 80-column display adaptor cartridge for the Atari has been cancelled because of delays in the production of a custom chip needed for the BI-80. Since they would be unable to market the cartridge in time for Christmas, they feel that too much financial risk would be involved in releasing a new product after the big Christmas buying season. They will, however bring to market upgraded editions of both HomePak and PaperClip and want all Atari owners and enthusiasts to know that Batteries Included is "still committed to the Atari software marketplace and will continue to create and publish" software for both the Atari XL/XE and ST markets.

BIG*ED LIVES!

The MACE Education Special Interest Group will hold meetings on the following Wednesdays: October 16, November 13, and December 11. Meetings are at Mt. Clemens High School (155 Cass Avenue, Mt. Clemens) and run from 7 pm until 9:30 pm. Anyone interested in education is welcome to attend. For more information or directions to the high school, call Mark Kennedy at 465-5849 (evenings) or leave messages at 469-7070 (afternoons).

SPEEDSCRIPT 3.0

by Charles Bannon
COMPUTE!

Reviewed by Michael Schiffer

SpeedScript 3.0 is the finest public domain word processor I have encountered, with features which compare favorably with programs costing much more. It is written in machine language and is available on numerous BBS's, from COMPUTE! (in written form), and from the MACE Program Library.

When SpeedScript is first booted, it immediately enters the text editor with the default colors of black on white. These can be set with control keys to whatever color combination pleases you most. Similarly, the screen may be made wider and narrower from its original 40 columns to suit your television or monitor. The program has many popular features, including block deletes, transposing two characters (so that "hte" becomes "the" at the touch of CTRL-X), headers and footers, search and replace, as well as most standard word processing commands. A friendly feature is that SpeedScript does not erase all you have typed when the RESET key is pressed.

SpeedScript's Menu option allows most DOS commands to be implemented immediately. The user can lock, unlock, delete, or rename a file, and format a disk. The program can support up to four drives. It is possible to Print to any file (P:, E:, D:, or C:, for example) except for R:. There is no provision for an R: handler in SpeedScript, so if you have a serial printer, you must print to the disk and then use the DOS function "Copy File" to copy it from disk to printer.

It is possible to insert any ASCII character into the text, including those used for other options by the program, by hitting the ESCape key before typing the control character to be entered. Thus, while there are no printer drivers, many printer controls can be included in the main body of the text. Also, any unused control character may be changed to another ASCII value.

The only fault I have found is in the cursor control keys. The up and down keys go by sentences, rather than lines, which takes getting used to. It is also possible to move by letter, word (SHIFT-left and -right), and paragraph.

All in all, I consider SpeedScript to be a good value. All documentation can be found in the May 1985 issue of COMPUTE!. Thus, for an investment of a few dollars, you can acquire a word processor comparable in power to many of those in the lower end of the market. I would consider it what Consumer Reports calls a "best buy": not necessarily the best, but the best value in cost and features.

TEXT WIZARD

DataSoft, Inc.
Reviewed by Moe Demming

Text Wizard was one of the first word processing programs written for the Atari computer line. It was written (and copyrighted) in 1981 by William V. Robinson. It is published and distributed exclusively by DataSoft Inc.

I own version 1.3 of Text Wizard. I understand that a newer and more powerful version now exists. But for my needs (which I consider "average"), version 1.3 suits me fine. I learned a lot with this program and it is my favorite - even with all the newer, more feature-laden word processors that have appeared since Text Wizard first hit the software stores. That's not to say that this one's a slouch.

Text Wizard will do most anything the average Atarian needs done. It was the preferred word processor of past MACE Journal editors (Ann has used Atariwriter, a distant cousin - more on that later). The almost 60 page manual explains what and how to do most any function Text Wizard provides.

Some features I find useful: cursor movement is very logical - CTRL + any arrow key gets you where you want to be. Not fast enough? OPTION + up or down arrow key moves you through text much faster. OPTION + T speeds you right to the top of your current document; OPTION + B gets you to the last line of your document.

Text entry is easy - just type away! Backspacing allows you to rub out anything you've just typed, while moving the cursor back allows you to retype over your previous entry. Did you just think of something you want to stick in the middle of an existing sentence? SHIFT + > (INSERT) puts Text Wizard in insert mode and will push ahead any existing text while you enter that late-breaking thought. For just one or two character inserts, CTRL + > works just fine, as well.

Text Wizard will search for or replace key words or phrases. Blocks of text can be easily moved, duplicated or erased with a series of keystrokes. Files can be merged together relatively easily.

From 1's and 0's in computer memory to the printed word is accomplished by OPTION + P. The cursor must be at the top leftmost corner of the document (else a partial printout). Text Wizard asks for Device:Filename. You tell it P: for printer, or you can write to disk by giving it a name, like "D:FILE.A" (SELECT + S is normally used to save a file to disk). I would imagine you could write to cassette, as well (but why??). Margins both top and bottom, and left and right can be set. If your printer will reverse feed, you can create double-column text.

Sub- and Superscripts are accomplished with a few keystrokes. Underscoring text, elongated or condensed type can be selected by imbedding "CTRL +" commands right within your text. Header and footer lines can be created, and Text Wizard will automatically number your multipaged documents for you. CTRL + W allows you to insert single sheet paper into your printer, and when that page is completed, Text Wizard will wait for you to insert the next sheet before continuing.

Sounds like a lot, eh? Well not quite... there are a couple of things I wish Text Wizard would and wouldn't do. Normal DOS functions are limited through Text Wizard. It will provide disk directories (OPTION + # of drive - only two are supported). It won't format disks for you. When deleting a file from disk altogether, there is no feedback as to the status of the process. If you are deleting more than one file using a wildcard, all that happens is that you are returned to the place in text where you left off. You have to go back to the directories to check whether the files were zapped correctly. An error in entering a filename could cost you time and text, as there is no "are you sure, fool?" yes/no prompt.

Text Wizard supports the Atari line of printers, and the Centronics standard printers as well. A version will also support the Epson standard, and has additional commands for text layout that are exclusive for Epson compatible printers. I am told that Text Wizard is an early version of a program that later became known as Atariwriter. Reportedly, Robinson worked with other Atari programmers to create the cartridge (Text Wizard is on disk, by the way). Files are compatible between the two, but some format and CTRL commands are different, so be careful when using one with the other.

I am also told by some professional typists that Text Wizard lacks certain advanced features that they like. But everyone's tastes vary, and for my money, Text Wizard and my Atari are all I need.

[Note: I have used AtariWriter for the Journal since last fall, but all of this issue (except for the PaperClip review) was done with Writer's Tool from OSS. -Ed.]

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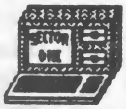

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THE WRITER'S TOOL

Optimized Systems Software, Inc.

Reviewed by Ann McBain Ezzell

I'll admit it: I'm a documentation junkie. I read the Print Shop manual even though it starts out by saying that you don't need to. When I opened Writer's Tool from OSS and saw the bright yellow 3-ring notebook, I knew my cravings would be satisfied - and I was right. Writer's Tool has the best documentation of any word processor I have ever used. The first thing you will notice is that it is printed on linen-weave paper - a classy touch for a classy product. The manual starts out with a Table of Contents, then an Introduction which summarizes the main features of Writer's Tool. Next is a 97 page Tutorial, followed by 70 pages of Reference Manual, 5 Appendices and a thorough Index. The cherry on top is a fold-out Reference Card. If that isn't enough documentation for you, you're in worse shape than I and had better contact your local chapter of Docuholics Anonymous.

The program itself comes in two parts: a cartridge and a disk. Side A of the disk contains some initialization files, printer configuration files, the "external" utility programs, and a couple of demonstration files for use with the Tutorial. There is room on the disk to store your own configuration files. The disk is not copy-protected, so you can make backup copies. Side B of the disk contains the Master Dictionary for use with the Spelling Checker. I was a little disappointed by the color of the cartridge; I guess OSS ran out of those day-glo orange cases they used to use. Their new ones are a discreet black, enlivened by a bright yellow label to match the documentation binder. On the plus side is the fact that these new cartridges seat more easily in the computer; the contact board is thinner and tapered, and OSS is now using gold-plated contacts.

Enough about the externals of Writer's Tool - let's take a look at its features. To run the program, you place the disk in drive #1, the cartridge in the slot, and turn on your computer. After a brief initialization, you will see the Edit screen and you can begin typing right away. You have a choice of Insert or Overwrite modes, each with a distinctive blinking cursor. (Overwrite also allows you to choose between the standard Atari block cursor and an underline cursor.) Single character cursor movement can be accomplished with or without using the CTRL key. When CURSOR EXCHANGE mode is chosen, a message appears in the Status Line at the bottom of the screen. The Status Line also indicates when the CAPS LOCK and INVERSE functions are in effect. While you can erase the Status Line if it distracts you, I find it useful to know if I have accidentally hit the INVERSE key.

The cursor can be moved to the beginning or end of a line, the beginning or end of the text, forward or backward to the next screen, or forward to the next word. Deletions and insertions are available by character, word (very handy!), or line. When deleting words or lines, Writer's Tool remembers the last five deletions so that they can easily be recalled. This is great if you get carried away with your deletions. It can also be used to move or duplicate words or lines quickly.

Another useful editing technique is Insert and Join. When you are in Overwrite mode, pressing SHIFT-INSERT will insert a blank line following the cursor. (In Insert mode, this inserts a carriage return.) This is the fastest way to insert text near the beginning of a long document. You can open up all of the available space by pressing CTRL-SHIFT INSERT. How do you get rid of the gap in your text? CTRL-J will remove all unused space after the cursor.

Writer's Tool's block commands are a little different from others I have seen, but work fine once you get used to them. CTRL-M marks the beginning and end of a block, which gets highlighted in inverse video. CTRL-C will copy the block to the

new cursor location; CTRL-X deletes the original block. To duplicate text, you copy it and then use CTRL-CLEAR to remove the markers. Multiple copies can be made before clearing the markers, but a deleted block is not retrievable.

Writer's Tool lets you switch previously entered text to all upper case or all lower case. This is not a toggle; upper case letters will remain upper case while lower case are converted. I like this better than a CAPS/LOWER toggle. You can also convert between normal and inverse video characters, convenient when editing text created on AtariWriter, which uses inverse video to indicate underlining.

One last editing feature is Word Wrap Control. Pressing the START key turns the word wrap feature on and off, with no loss of text (how do they do that??). This makes editing tables or program listings much easier, because you can see exactly how things line up.

Other functions of Writer's Tool can be accessed through the Main Menu, reached by pressing OPTION or CTRL-O. The Main Menu appears in a four line Command Window at the bottom of the screen. The rest of the text screen remains visible but inaccessible. The following functions are listed: SEARCH, DISKIO, PRINT, CLEAR, XTERNAL, and EDIT.

The Clear option simply lets you delete all text either after or before the cursor. I usually find it easier to use the block delete function. You can hold down the CTRL key and type MEMX or MBMX to delete to the end or beginning of text, and this seems faster to me than calling the Main Menu, selecting CLEAR, hitting A or B and RETURN, then Y and RETURN to confirm.

There is a function accessed through the OPTION key which is not shown on the Main Menu. Writer's Tool allows definition of up to 10 phrase buffers at the beginning of your text. These phrases are defined in comment lines and assigned single digit labels. To insert a defined phrase into your text, you press OPTION and the number of the phrase, which is then entered automatically at the cursor location. Each phrase can be up to 251 characters. There is a way to include carriage returns in a phrase so that you can insert multiple lines with one call.

When using the Search System, you are prompted to enter either the old and new strings (for Replace) or just the old string (for Search). The strings must be set off by delimiters, which can be any character not included in the string. For example, the prompt uses "/" for a delimiter, but if you want to search for a string containing that symbol, you can use another character as a delimiter (*ATARI*Atari*, for example). You can use "?" as a wild card character in the old string. It is possible to search for special characters (control, inverse or formatting codes, including carriage return), but I haven't figured out a way to search for a question mark, since it's treated as a wild card.

After you press RETURN, the cursor returns to the Edit System at the first occurrence of the old string. If you have not specified a new string, control is returned to the Edit System. You can continue searching for the same string by pressing CTRL-S. When doing a Search and Replace, you are asked if you want to Replace, Skip, or Quit. This continues until the old string is no longer found, or you quit. The only way to do a "global" Search and Replace is to hold down the R key while Writer's Tool reads through the text. I was surprised that this program doesn't allow global replacements, but it's really not all that inconvenient (and it's much safer) to check each occurrence. (I once used a toothpick to wedge down the R key while deleting lots of spaces from a document. It worked just fine.)

The Diskio System controls input and output of files between the Edit System and your disk drive(s). Writer's Tool comes set up to handle up to two drives but can be reconfigured for up to four. Double density is supported. From the Diskio System you can view or print disk

directories, load, save or delete a file, initialize a drive or disk, or exit to the Edit System. The top of the screen contains brief explanations of the functions and some pointers used by Load and Save which tell you the locations of the cursor, the end of text, and the end of memory, and the number of free bytes remaining. Save and Load start at the present cursor location; to save an entire file, you should place the cursor at the beginning of the text before leaving the Edit System. If you attempt to save a file without homing the cursor, Writer's Tool will tell you that only part of the text is going to be saved and ask if that's okay. If not, the program offers you a chance to save the entire buffer. If no file has been previously accessed, you will be prompted to enter a filename. Otherwise, the program defaults to the most recent file and says it will save to that filename. You can enter a new name. This default system is a great convenience when doing multiple saves on a file. After a save, Writer's Tool displays the disk directory to show that the operation was successful.

When you are loading a file, if the cursor is located so that the file in memory will be overwritten, Writer's Tool lets you know and gives you a chance to bail out. There is no provision made for merging one file into another, but you can append files. As with saving and loading files, when you delete a file, Writer's Tool will ask if you are sure. I am almost always sure, but quite frequently wrong. Perhaps the program should be rewritten to ask "ARE YOU RIGHT?" instead.

I think that the Diskio System functions should include the ability to lock and unlock files, or at least unlock them. There is no way to delete or save to a locked file as the program is provided. Renaming files is also not allowed. You can replace the DOS XL version on the Writer's Tool disk with Atari DOS to allow calling DOS (press OPTION-RESET), but that will clobber your text. The DOS XL provided returns control to the intact Edit screen after OPTION-RESET.

The usefulness of a word processor depends heavily on its ability to format and print text, and it is in this area that Writer's Tool really excels. You can send as many printer control codes as your printer will recognize, and you have amazing control over the pitch, print styles, margins and other format parameters. When you call the Print System, the top of the screen displays the current (default) values of format values for page and line length, margins, line spacing, and so on. It also lists most of the format commands which can be embedded in the text. The name of the current printer driver and the number of words in the text buffer appear just above the command window, which offers the following choices: FMAT (Format), PRINT, LINK, MERGE, CHNGE (Change parameters), and EDIT.

To print using the default parameters, you simply press P. You can pause or abort the printing. Format parameters can be changed either from the Print System menu or by embedding format commands in your text. Format commands must follow a carriage return and begin with a period, but most commands can be strung together on a single command line. The following format parameters can be set: page length, line spacing, footer position, line grouping, page eject, left margin, indentation from left margin, line length, right justification, tab positions, double column printing, centered text, split justified text, alternate justification, default reset, font selection, starting page number, print preview, single sheet printing, pause during printing, tab advance, automatic page numbering, non-printed comment, soft hyphen and hard space. Most of these are obvious, but some deserve explanation. Line spacings of single, double, half and one and a half lines are supported. Line grouping allows you to specify that a certain number of lines (a chart, for example) must be printed all on one page; if there isn't room on the current page, Writer's Tool will do a page eject and print the grouped lines on the next page. Indenting from the left margin allows you to indent a block of

text. Split justified printing can be used to print part of a line blocked left and part blocked right. Alternate justification reverses the location of the parts of a split-justified line on alternate pages. For example, you can number pages so that the number is always at the outer edge - the way some magazines do. A non-printed comment can be used to leave yourself notes while writing without worrying that they will show up later in your printed copy. The soft hyphen lets Writer's Tool decide if a long word should be hyphenated or not (you mark the breaking place), depending on the space available in the current line. This feature can be used to give your printed copy a more professional look, especially when using right justification. A hard space will keep words from being split by word wrap.

Writer's Tool supports headers and footers of any length that will fit on the page. These are used to print the same thing at the top and/or bottom of each page, and can be set up to number the pages automatically, beginning with whatever number you choose. They can use the same margins as the main text, or be formatted independently. If you set the beginning footer line equal to the page length and don't include a header, your text will print in one continuous block.

A word about the way Writer's Tool prints: it starts wherever it is, and stops when it's done. Unless you include a header of blank lines, your printed copy will begin wherever you set the printhead on the paper. A footer on the final page will not print unless you have placed a page eject command at the end. Having to eject the page to get a footer is just one of Writer's Tool's little quirks: odd at first, but not difficult to accommodate. Something that's a little harder to get used to is the fact that Writer's Tool starts printing at the cursor position. You must remember to return the cursor to the top of the text if you want to print the entire document. Unlike the Diskio System, the Print System does not warn you if you have forgotten to home the cursor. You just have to get used to homing the cursor whenever you exit to the Diskio or Print System.

In the past year, I have used AtariWriter's Print Preview function often while setting up the Journal. It is important to me to be able to see exactly where page breaks occur, and how many lines an article uses. I regret having to report that Writer's Tool's Print Preview function just doesn't make the grade. First of all, you can only see the left side of your document (the first 38 columns), and you can only move forward through the document. Unless you put in a page wait command, the preview zips through the pages without pause (although you can halt and restart the scrolling by pressing P). Finding out how many lines a partial page occupies requires either starting and stopping the scrolling so you can manually count the lines, or putting numbered lines at the end of the document so you can see how many blank lines are left on the page. I suppose that most users will only want to see page breaks and approximate page formats, but some of us nitpickers need more information. OSS gets credit for including Print Preview, but only a C+ (maybe a B-). Sorry, guys.

Yes, Virginia, Writer's Tool <u>does</u> support double column printing. If your printer has a reverse line feed (like the Atari 825), Writer's Tool will use it. Otherwise, you will be prompted at the end of the first column to set the printhead back to the top of the page to print the second column. <u>Right</u>, I thought - when I turn off my Gemini to reverse the paper, I'm going to lose the formatting commands. Wrong. It works just fine. I don't know that I'd want to print out the Journal by manually reversing each page, but it could be done.

If your printer has special capabilities, chances are good that Writer's Tool supports them. Printer configuration files are included for 15 popular printers; there is also a generic file. Printer files can be loaded through the Change option of the Print System without losing text, or you can designate a default printer file to be loaded when Writer's Tool boots. Up to

five fonts are available, depending on your printer. Proportional fonts are supported. Font modifications available are emphasized, double-strike, italic, and double-width printing; underlining; and superscripts and subscripts. Font modifiers are used in pairs to enclose the text to be modified; the same keystrokes start and stop the modification. There are two possibilities for super/subscripts. If your printer can perform a half line feed, you can use "triple printing" (with non-proportional fonts only). When Writer's Tool encounters a line with super/subscripts, it will advance the paper one half line, print the superscripts, advance another half line, print the main text, advance another half line, and print the subscripts. You can also elect to print super/subscripts however your printer normally does, but triple printing produces very neat and legible copy.

Writer's Tool provides 23,075 bytes of text buffer on both the 48K 800 and the 64K 800XL. With 80-character lines, this works out to just over 10 1/2 double-spaced pages. Even with the text buffer full, you can still preview the entire document. To print longer files you can use Linked Printing, which allows you to specify files to be read in from disk and included when your document is printed. One feature of Linked Printing which was not totally supported in the version I tested (2.21) is the ability to include graphics in your text. If a filename has the extender ".GGG", all but the first byte will be sent to the printer without modification. The first byte must tell Writer's Tool how many half lines the graphics will occupy on the page so that automatic paging will work properly. The only problem is that there is at present no way to prepare the necessary file. (I took a graphics file created by the HIRESDMP.GRA program on the PaperClip disk, added the first byte, and it worked just fine.) According to Mike Fitch at OSS, a Graphics Driver will be incorporated into the next version of Writer's Tool. This feature will support Epson, Prowriter and Okidata printers, allowing you to create linkable graphics files from Graphics 8 or uncompressed Graphics 7 1/2 (like Koala Pad and Touch Tablet) screens. The graphics will be printed in shades of grey, either in normal or inverse format, and can be mixed with text on a page without disturbing the page format. Registered owners of Writer's Tool can send a blank disk plus return postage to OSS now and ask for the Graphics Driver. If long distance doesn't bother you, you can call OSS's bulletin board at (408) 446-3451 and download the program. The board is up 24 hours and runs at 300 and 1200 bps. Look for a review of the Graphics Driver in next month's Journal.

The Merge System is actually a mini-database. You create a template document that will read in and merge information automatically from a disk file, then you create the data file by entering information in response to prompts listing the data labels. When printing the merged document, you can print copies for the entire database, or verify each copy for selective printing. The merging process will also accept keyboard input of data. Non-printing comments can be used as data labels to guide you through the data file, which can be edited with the Edit System. For printing invoices or other documents with variable numbers of items, Writer's Tool allows repeated data items within a record.

In addition to printer configuration files, the Print System Change command lets you install new custom files (containing format parameters) without disturbing the text in memory. You can create your own printer drivers and custom files with the external Customizer program.

Speaking of external menu functions... there are four programs available. Loading these will erase the text in memory, but only after a warning and a chance to save to disk. The first two external programs, Spell and Dictm, are used with the spelling checker; the other two, Custm and Prdat, let you create and edit custom files and printer drivers.

To use the Spelling Checker, you must have your file on a disk. The program reads through the text, creating an alphabetical list of the words used and displaying the total number of words and the number of distinct words. The alphabetical list can be saved for later reference or use in creating your own dictionary. Next, the Spelling Checker compares the list of distinct words with the Master Dictionary, which contains about 20,000 words. The number of unmatched words is displayed, then you can choose to search through one or more other dictionaries. The final list of unmatched words can be saved before proceeding to the correction phase, which offers two methods of correction. The Spelling Checker can automatically convert all unmatched words to inverse video and write the new file to disk so that you can later correct it with the Edit System. The other option is the interactive correction routine, which displays the text word by word on the screen, printing unmatched words in inverse video. For each one, you can choose to "ignore" it (skip only this occurrence), "omit" it (skip all occurrences), mark the word, or correct it immediately. The entire corrected document will be written to a disk file. One thing that this program doesn't do that I have seen in other spelling checkers is offer the option of displaying part of the dictionary during the correction process so that you can check the spelling of related words. Still, with the ability to flag a word for later checking, this is a minor omission in an otherwise fine utility.

The Dictionary Manager lets you add or subtract up to about 1000 words at a time from a previously created dictionary. Dictionary size is limited to about half of the available disk space. (The 20,000 word Master Dictionary only occupies 485 single density sectors, so space shouldn't be a problem.)

The Customizer program allows you to edit or create custom format files. You can set new default values for the Print System format parameters; change the cursor flash rate and brightness; set the Edit screen margins, color and luminance; and direct Atari 800 sound to the monitor or console (all 800XL sound goes to the monitor). Custom files can be written to load automatically when Writer's Tool boots, or they can be loaded manually from the Change option of the Print System. This makes it possible to set up standard formats for letters, reports, etc. and print using the default values.

The last external program is the Printer Data File Editor for those who wish to create or modify a printer data file. There is a detailed section in the manual describing how to use this utility. Basically, you must enter the printer control codes necessary for whatever features your printer supports. The codes are entered using ATASCII character equivalents; the hexadecimal values for the codes are displayed at the bottom of the screen (a nice touch for double checking). In addition to the line spacing and font modifier commands, Writer's Tool supports a "translation table" which tells it to replace certain characters with one or more different characters before printing. You could set it to turn on some feature of your printer or print special characters whenever it encounters a certain (normally unused) character in the text. The translation table can be written with the Printer Data File Editor.

The Writer's Tool manual five appendices start with a chart showing the decimal and hexadecimal values for each of the ATASCII characters, plus the keystrokes needed to produce them. Appendix 2 describes how to reconfigure the program to support more than two disk drives, while Appendix 3 discusses using different disk densities (single, double, or Atari 1050 "dual" density). Appendix 4 details the structure of a printer data file and includes a commented listing of the Prowriter printer file from the Writer's Tool disk. Appendix 5 lists some common problems and suggestions for dealing with them.

While preparing this review, I spoke with Mike Fitch from OSS about expected

improvements to the program. Version 2.25 (possibly available as you read this) will include the Graphics Driver to allow inclusion of screen dumps within your text. (OSS will also provide a copy of the Graphics Driver to registered owners of Writer's Tool who send in a disk and return postage.) Some other changes in Version 2.25 include an 80 character type ahead buffer, a faster key repeat rate, and the correction of some "small bugs".

Version 3.0 (or whatever they decide to call it) is currently being developed. This Writer's Tool will make use of the 130 XE's expanded memory, but will also run on the older machines. Some of the items on the "wish list" (no promises, folks!) are a global search and replace, a Rename function in the Diskio System, 3-5 independent text windows, link printing between windows, the ability to direct output to disk as well as to the printer, single pass double column printing, and (for 130 XE's only) a software-driven 80 column preview (using special characters so that all 80 columns are visible at once). And I thought Version 2.21 was good! This upgrade should be available for $20 (OSS's standard policy) whenever it finally emerges. One last note from OSS: have you been wondering why you haven't gotten a newsletter from them recently? Seems a hard disk crashed, wiping out their database. They are currently busy typing all the names back in and should be mailing out a new issue soon.

So what's the final verdict on Writer's Tool? I personally think it's the best thing since Reese's Pieces, and if you want to make your printer stand up and whistle Yankee Doodle Dandy, you might, too. It requires a little more attention to detail than some other word processors, but I think it's worth it. With the fantastic documentation, even an utter novice should be producing expertly formatted copy in short order. For the more experienced user, the ability to delve into the printer driver files will provide almost limitless control over the printer. The program runs smoothly and efficiently; it does what it sets out to do and does it well. Writer's Tool lists for $69, but I have seen it discounted as low as $52. When you consider that that price includes a spelling checker that might cost $15-$20 if purchased separately, it's quite reasonable.

Writer's Tool won't be perfect for everyone; no word processor currently available is. If you really need a detailed print preview function, look elsewhere. But if you're looking for maximum printer control, a built-in spelling checker, and a well-engineered program, you've found it.

MACE UNCLASSIFIEDS

WANTED: Used disk drive in good condition for good price. Will take just about any kind like Indus, Trak, or 1050, but preferably not 810. Call 693-4587 after 3:30 pm. Ask for Scott.

CORRECTIONS
MACE JOURNAL PROGRAM LISTER

Bill Licht called with the following changes to make the MJPL listed last month work properly on the Atari 1027 printer. Since the 1027 doesn't have curly brackets, this version uses regular square brackets to enclose control characters and descriptive labels.

Lines 150-160
Replace CTRL-; (semicolon) with SHIFT-, (comma) and CLEAR with SHIFT-. (period) to produce the left and right brackets.

Line 625
Dimension UON$ and UOFF$ to 1 and define UON$ as CTRL-O and UOFF$ as CTRL-N.

Line 942
Replace CHR$(123) with CHR$(91)

Line 950
Replace CHR$(125) with CHR$(93)

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LOGO
Workspace Manager

by Bob Pettapiece

[These procedures are based on an article by Jason Gervich in The Atari Explorer (February 1985, pp. 60-63).]

The following procedures in LOGO can provide many shortcuts to developing programs and saving them using Atari LOGO. After entering them, save them to the file "D:WMP". I have modified them from the original article to make them smoother and customized to my needs. One typing hint for entering my procedures: where it indicates [tab] you type [, hit the tab key and then]. This gives you a different prompt sign and you know you are not in the regular workspace mode. I recommend reading the article for more details.

Briefly, here is what the procedures do:

SP saves any procedures in the workspace you want, from one to all in memory. You simply need to type the procedures at the prompt with spaces between the names.

EP allows you to erase one or as many procedures as you wish, again the names are separated by spaces.

E gives you a list of the procedures in the work space and allows you to choose as many to place into the Editor as you wish, separated by spaces.

M gives you the menu of the Workspace Management Procedures; you choose the one you want at the end.

C is the easy one: it catalogs your disk (D1:).

L prompts you for a file name and it does the rest to load the file into the workspace.

EW erases the entire workspace, with or without the WMP procrdures.

SW saves the entire workspace, not including the WMP procedures, to disk or printer and then reloads WMP.

If you should get into a procedure you do not desire, you may usually hit RETURN to get out without leaving any variables to clutter up the workspace. I hope this makes LOGO easier and more enjoyable.

[Note: Enter underlined characters in inverse video.]

```
TO SP
CT
PR [Procedures to Save?]
PR [] POTS PR []
TYPE [X]
MAKE "PROCS RL
PR [Save to Printer or Disk ( P / D )]
MAKE "DEV RC
IF [] = :DEV [ERN [PROCS DEV]
STOP]
IF EQUALP :DEV "D [PR [Save as what
Filename?] MAKE "FILE RL]
IF EQUALP :DEV "D [CT SETCURSOR
[4 8] PR [Saving Procedures to Disk]
SETWRITE WORD "D: FIRST :FILE]
IF EQUALP :DEV "P [CT SETCURSOR
[4 8] PR [Saving Procedures to
Printer] SETWRITE "P:]
WAIT 60
.DEPOSIT 559 0
PO :PROCS
SETWRITE []
.DEPOSIT 559 58
CT SETCURSOR [10 8]
PR [Procedures Saved]
ERN [PROCS FILE DEV]
END

TO EP
CT
PR [Which Procedure to Erase?]
PR [] POTS
PR []
TYPE [X]
MAKE "PROCS RL
IF [] = :PROCS [ERN "PROCS STOP]
PR ( SE [ERASE] [<] :PROCS [>] )
```

```
PR [Are you sure? ( Y / N )]
MAKE "ERPROCS RC
IF  EQUALP  :ERPROCS  "Y  [ERASE
:PROCS]
ERN [PROCS ERPROCS]
END

TO M
CT
SETCURSOR [13 0] PR [WMP MENU]
SETCURSOR [6 3] PR ( SE [] [C] []
[Catalog] )
SETCURSOR [6 4] PR ( SE [] [E] []
[Edit] )
SETCURSOR [6 5] PR ( SE [] [L] []
[Load] )
SETCURSOR [6 6] PR ( SE [] [M] []
[Menu] )
SETCURSOR [6 7] PR ( SE [] [EW] []
[Erase WMP] )
SETCURSOR [6 8] PR ( SE [] [EP] []
[Erase Procedures] )
SETCURSOR [6 9] PR ( SE [] [SP] []
[Save Procedures] )
SETCURSOR [6 10] PR ( SE [] [SW] []
[Save Workspace] )
PR []
TYPE [X]
RUN RL
END

TO C
CATALOG "D:
END

TO E
CT
PR [Procedures to Edit?]
PR [] POTS
PR []
TYPE [X]
MAKE "PROCS RL
IF [] = :PROCS [ERN :PROCS STOP]
ED :PROCS
ERN "PROCS
END

TO L
PR [File name to LOAD?]
TYPE [X]
MAKE "FILENAME RL
IF [] = :FILENAME [ERN "FILENAME
STOP]
LOAD WORD "D: FIRST :FILENAME
ERN "FILENAME
END

TO EW
CT
PR [Erase all WMP Procedures? ( Y / N
)]
PR []
TYPE [X]
MAKE "ERWMP RC
IF [] = :ERWMP [ERN "ERWMP STOP]
IF EQUALP :ERWMP [Y] [ER [SW EW L
E C M EP SP]]
ERN "ERWMP
END

TO SW
CT PR [Save Workspace] PR []
PONS PR []
PR [Save With Variables? ( Y / N )]
MAKE "SVAR RC PR :SVAR
ER [EW SW L E C M EP SP]
PR [Printer or Disk? P / D]
MAKE "DEVICE RC PR :DEVICE
IF [] = :DEVICE [ERN [SVAR SWMP
DEVICE] STOP]
IF  EQUALP  :DEVICE  "P  [CT
SETCURSOR  [4  8]  PR  [Saving
Workspace to Printer] SETWRITE "P:]
IF EQUALP :DEVICE "D [PR [File
Name?] MAKE "FILE RL]
IF  EQUALP  :DEVICE  "D  [CT
SETCURSOR  [4  8]  PR  [Saving
Workspace to Disk] SETWRITE WORD
"D: FIRST :FILE]
WAIT 60 CT .DEPOSIT 559 0
IF EQUALP :SVAR "Y [ERN [DEVICE
FILE SVAR] POALL] [POPS]
SETWRITE []
CT .DEPOSIT 559 58
SETCURSOR [10 8]
PR [Workspace Saved]
SETCURSOR [9 10]
PR  [Reloading  WMP  file]  LOAD
"D:WMP
ERN [DEVICE FILE SVAR]
END
```

SYNCHROMESH

Indus Systems

Reviewed by Russell Crum

I finally got it!! The long awaited and elusive Synchromesh from Indus Systems has finally been released. You Indus owners will recall that this was advertised as the DOS that would make the Indus disk drive operate at "turbo" speeds of up to 400% faster (faster than what is not clear). You say you want to run at turbo speed to get your copy? Try a fast walk and read on.

First, there really is a DOS XL 2.35I that incorporates a "souped up" transfer rate. It, like DOS XL 2.3, is a product of OSS. The best speed increase that I could get was about 190%. The worst was 0%.

I timed a lot of disk I/O to see what I had received for my money. The two program files that I used were BASIC files. One was 17,650 bytes and the other was 9,192 bytes. I acquired times for both Atari BASIC and OSS BASIC XL. The following is a tabulation of my results (times are seconds):

	Synchromesh	Dos 2.3
Boot DOS	39*	25*
Load 17K	11.6	25
Save 17K	16.5	48
Load 9K	6.9	13.2
Save 9K	14.5	16

[*Dos times are for Atari BASIC. BASIC XL times were 35 and 29 seconds.]

An interesting assortment of times, isn't it? The plot thickens!!

The extra Synchromesh boot time can largely be explained. Synchromesh must be turned on from the command processor after DOS is booted. I did this by creating a STARTUP.EXC file (works like an AUTORUN.SYS file). The alternative would be to boot DOS, go to the command processor through the menu and type "GTSYNC ON". After Synchromesh is loaded and operating, go back to the menu then back to BASIC. Loading and executing the STARTUP.EXC file costs some time.

All of these times were acquired on a double density disk. I decided to try single density for this review. I got twice the time to boot with Synchromesh as with DOS 2.3 and no improvement in program loading times!! I called Indus about this. They could not explain it except that I must have a faulty disk, even though it seems to work in double density. They offered to replace my disk if I would send it to them. I haven't and don't plan to since I work in double density almost exclusively. They also confirmed that most reports that they are getting verify my figures of about 100% speed increase in normal program loading speed rather than the 400% increase originally claimed.

Other bad news... I checked free memory after booting DOS. I was dismayed to see 27150 bytes instead of the 34574 I was used to with my BASIC XL. With Atari BASIC I got 28174 (Atari DOS 2.0 leaves 32146 on my 800XL). I found that I could get 29882 with BASIC XL if I got rid of the menu out of memory. I was upset! The 17K program I was using to test with would bomb when it got to the point of setting up a Graphics 8 screen! I later found out that the cause was that the DOS XL file that I normally use to get the extra memory when using BASIC XL can not be used when Synchromesh is being used. Another item: Synchromesh doesn't do anything to speed up LISTed programs or data being read from disk (using ENTER) as part of a program. The last bit of pain in the you know what comes when a disk is initialized for Synchromesh. First the disk must be initialized. Second, the boot sectors must be reformatted. Third, DOS is written to the disk. These are all manually selected menu items, too! The manual explains the reason for the reformatting of the boot tracks, but it was still less than obvious to my small mind.

Some good news... This version of DOS has an auto-density feature. It will reset itself to single or double density depending on the disk in the drive. (Regular DOS 2.3 does this only on initial boot or when the RESET key is pressed). Also included on the disk is a disk drive speed checker. This is the same program contained in Atari BASIC, Faster and Better (see review in MACE Journal, June 1985).

How do you get this little gem? If you sent in your registration card, it can be yours! You can send your old DOS master disk along with $2.00 and the serial number of your drive and Indus will send you DOS 2.35I. You can also send $9.95, no old disk, and the serial number of your drive and Indus will send you DOS 2.35I and the 238 page DOS XL reference manual. If you didn't send in your registration card, I don't know.

I got a card from Indus in April about this offer. I know many Indus owners did not. When I asked Indus about this, they said a "limited" mailing was done. Anyway, they told me that the offer had been extended several times and was now valid until August 31. If you are interested, you should call them before sending any money.

Is Synchromesh a good deal? I think it is a real mixed bag. If you normally fire up and load one program, the total disk time is about a wash. I plan to only use it on my work disks that I use when developing a program since I am usually doing several saves then. Otherwise, I don't think it is worth the memory I have to give up with BASIC XL.

SIGNALMAN MKXII
DTR FIX

by Jon Tara
FidoNet Newsletter

[This article comes to us courtesy of our errant President, Kirk Revitzer, who has been led astray from the 8-Bit Truth to the evil PC Path. Still, he has not forgotten us, and wanted to share this helpful information with MKXII owners. This is like those trick tests in school: read the entire article before you start cutting and soldering. -Ed.]

The Anchor Signalman MKXII does not support the RS-232 DTR (data terminal ready) signal. Too bad, since at $250 (discounted) this is probably the cheapest stand-alone 1200 bps modem available, and it seems to work just fine otherwise. Unfortunately, quite a bit of software (BBSs especially) depend on DTR to hang up the phone. This file describes a hardware fix which will add DTR to the MKXII. Obviously, this voids your 2-year warranty. However, the same thing COULD be done with an external box.

You will need:

* 1 - 2N4401 transistor
* 1 - 10K ohm 1/4 watt resistor
* a short piece of thin wire (#30 wirewrap wire suggested)
* shrink-wrap & tape (to do it right)
* an Exacto knife
* solder, soldering iron, and the ability to use it

1) Using a flat-blade screwdriver, open the Signalman case. Try not to mangle it too badly.

2) Remove the circuit board and turn it so that the solder side is facing up, and the serial cable is at the bottom.

3) It should say "Anchor Automation Inc 00472 Rev A" in the upper right-hand corner. If it doesn't, this may not work, or may not make sense.

4) In the lower right-hand corner of the board, just to the left and above the right-hand phone connector, you will notice two vertical groups of three pads. The left group has no traces coming from it. The right group has traces coming from the bottom and top pads.

5) Cut the trace coming from the bottom right-hand pad. Try to do this near to the pad.

6) Position the 2N4401 transistor with the flat side toward the board, and the wires toward the top of the board.

7) Solder the RIGHT-hand wire of the transistor to the lower right-hand pad of the group of six that you located above. (The one that you cut the trace to.)

8) Solder the MIDDLE wire of the transistor to the cut trace, on the other side of the cut.

9) Solder one end of the 10K resistor to the remaining wire of the transistor.

10) Solder a 3" piece of wire to the other end of the 10K resistor.

11) Slip a piece of heat-shrink over the resistor, and shrink.

12) Now, find the group of pads coming from the RS-232 cable. Find the 4th pad from the left, and 2nd from the bottom. There should be traces coming from the pads just above and below it.

13) Solder the other end of the wire to this pad.

14) Put a piece of tape over the whole shebang, just to keep it from moving.

15) That's it! The modem should now observe DTR. If the DTR signal is 0 or negative voltage, the telephone line (through the on-board relay) will be disconnected from the modem. If the DTR signal is above a couple of volts then everything works normally.

16) Make sure that you connect DTR to your computer and that your computer asserts DTR! The modem will NOT operate without DTR asserted!

17) If DTR is dropped, the line to the modem will be dropped. The modem should notice it and drop carrier detect to your computer, as well as decide to hang up on its very own. At this point, you can bring DTR back up, and the caller (or callee) should be gone. I have no idea what the timing should be - whatever it takes the relay to operate. 1/10 second should be more than ample. This works with FIDO - I can't tell you what other BBS software will do.

[Note: Fido drops DTR, waits 2 seconds, then raises it again. -FidoNews Ed.]

18) You will soon discover why people with Hayes modems are constantly pulling the front off to operate the DIP switches. PC-Talk (and maybe other programs) insists on dropping DTR when you exit or change communication parameters. Oh well, you can't have everything!

19) Oh yeah - quit gawking and put the thing back together.

20) Pray.

From: Jon Tara on FIDO #92 Subject: oops...

An article that was published in FIDOnet newsletter #203 on making the Anchor Signalman MKXII work with FIDO incorrect. I forgot to observe Heath's law:

> "Any kit should be tested by a complete idiot before printing the manual. Even so, there will still be at least one mistake that slips through. Furthermore, at least one idiot will get it right with the WRONG instructions."

(Must explain the messages of thanks I got...) Anyway, thanks to one person who proved ME an idiot for not trying to build this from my own instructions.

The INCORRECT step follows:

8) Solder the MIDDLE wire of the transistor to the cut trace, on the other side of the cut.

This should be corrected to read:

8) Solder the LEFT-hand wire of the transistor to the cut trace, on the other side of the cut.

(in step 9, a resistor gets soldered to "the remaining wire" of the transistor. This is the MIDDLE wire)

Sorry for any inconvenience and/or hair-pulling this has caused.

HIS COMPUTER

By Gloria Rendla
(c) 1985

I'd like to start out by saying that I enjoyed the article "My Computer" by Gordon T. Totty in the August 1985 MACE Journal so much, I decided it was time to put my thoughts into writing. Bob and I started out together, 12 years ago, as one high-tech person (him) and one "What do you need it for the stereo we have sounds ok to me" non high-tech person (me!). As the home computer age dawned, there was Bob right on its doorstep. In came the magazines about computers and the suggestion that WE should have one. The magazines and the suggestions kept coming for 2 years. Finally, trying to be "opened minded", I asked what this toy (all Bob's wants are toys) would cost. $1000.00 was his reply and I sucked in my breath and exhaled loudly before asking what it would do for this $1000.00. That's just the keyboard, he said. You have to buy this and that and that and this for it to do things. Since I didn't understand any of this I offered by usual suggestion - "Can't we WAIT 'til the price goes down a little?" That seemed to work until the price dropped to $300.00 less a $100.00 rebate. How could I object to a computer for $200.00 even though it did nothing til we got the this and that? So Bob's computer was purchased in November of 1983. Just to make me happy, he bought the Pacman cartridge (my favorite game). And then... I took over HIS COMPUTER.

By the end of December, 1983, I (oops, we) had the program recorder, tapes, BASIC cartridge and some books on the BASIC language. These were some of the things he said we needed so I gave them to HIM for Christmas. The truth was, I couldn't stand seeing the computer sit there and do nothing. Besides, any programs typed in were lost when we turned the computer off and that didn't make any sense, right? My curiosity was stimulated and a computerist was born.

The Atari 800's first home was a set of TV trays set up in front of our 25-inch color TV in the living room. Since we had to sit on the couch at least 5 or 6 feet away from the TV there seemed to be wires going everywhere. More than once I threatened my 7 year old son with death by hanging if he "accidentally" fell on the wires and disconnected the computer, causing me to lose my hours of typing. Bob and I enjoyed his new toy for a few months until we decided it was time to give our Atari a proper home and us a more comfortable area to enjoy it. So by March of 1984 we had an office size desk (just in case we needed the space), a chair and of course a new 13-inch color TV. (Before the computer, why would you need a second TV; isn't one enough?)

As time went on, I was getting the hang of this computer. But every time Bob went near it for some reason, he always lost the programs he had saved to tape. (I never did have that problem.) Being frustrated, he suggested buying a Trak disk drive and while we were at it, why not a printer? After he explained the speed of the disk drive versus the recorder and that we could print out a program and find typing errors more easily, how could I resist? (Smile) In came the Trak disk drive and a Prowriter printer (thank goodness for the office size desk). And let's not forget to get some blank disks and paper for the printer and... (oh, boy! This is fun).

By the middle of 1984, I was reading five computer magazines a month, joined MACE, SCAT and was interested in purchasing an MPP modem. What a great Christmas present, I hinted, but instead I decided what a nice way to celebrate the month of November and the modem arrived on November 3rd (this was, of course, after we went to the computer store and I said it would be sad to leave it there 'cause I knew HIS computer would love it). I can definitely say the modem has helped me meet knowledgable people and has opened up a whole new world of interest.

It's still HIS COMPUTER but Bob has lost interest in it. I do wish he'd get back into

it 'cause I get lost in all this high-tech lingo. In the meantime, I've typed in lots of magazine programs and in so doing learned the BASIC language. I'm not saying I'm great but I do have a working knowledge of the language. I'm proud to say I can debug a program (not all) and change one to my needs, if necessary. Sure we have some games, but I'm past that now and interested in learning assembly language. The games are great for relaxing after a learning session, especially if it's been a frustrating one. I think the worst frustration of all is the feeling of being alone, not having someone with the knowledge to answer my questions NOW, not three weeks down the road when I've forgotten why I asked.

If you've kept up with me, so far we have an Atari 800 (48K), a Trak disk drive, a Prowriter printer, and an MPP 1000C modem. So what more could I want? - Read on.

During the early part of '85, I wanted another disk drive, so we bought another Trak. Why, you ask? It's great for backing up your disks, but I still haven't been able to figure out why I can't run a program which says I can use 2 drives. Any help here would be swell.

OK, so we have all this hardware, but what am I doing with it? Aside from learning BASIC and then going on to assembly language, I want to learn a program call DiskWizard II. This disk has four programs (disk back-up, disk edit, disassembler and disk speed) which can give me an understanding of what's on that floppy, another foreign country to explore. Guess you'd say I'm deep into the learning aspect, but I have done other things with the computer. I used Codewriter (very slow data retrieval) to set up customer files for a craft business I had and then printed out customer call-back sheets and address labels. Atariwriter produced a newsletter I sent out once a month. Now I enjoy using an APX program, Recipe Search'N Save, for a file of all my recipes. It will search and print out one or more recipes of my choice and/or create a shopping list of ingredients. Fastfile from COMPUTE! stores all my coupons. Now I don't miss using one as the program will give me a printout by expiration date. I have a mailing list program which takes care of labels I need for Christmas cards. Atariwriter helps in writing letters of praise as well as complaints, math practice sheets for my son, address labels, newspaper community notices for the new computer club in town - The Bit Kickers, and even this article. I'll never use a typewriter again!

The Program I use the most, after Atariwriter, is Visicalc. I've used spreadsheets for various reasons - but an electronic spreadsheet is the cat's meow! Initially, I set up our budget on it but I expanded it with other information to the point that after six months of input, I've exhausted the available memory of my computer. Say, does anyone know if Visiscalc files can be transferred to Syncalc?

After seeing the budget setup, Bob wanted a spreadsheet to keep track of his golf league's scores. So we, together again (smile), set up a sheet for the league. He proudly took a printout to work and some of the guys couldn't believe a "computer" could do that. He now enters data with ease and hasn't lost one "byte" - thanks, Trak!

With a bookkeeping background, balancing the checkbook has never been a problem for me. However, Bob and some of our friends can't quite get the hang of it. So I used Visicalc and set up a sheet to balance your checkbook against your bank statement, but I need testers, besides Bob, who have computers to see if it is understandable.

What does the future hold? There are such fantastic possibilities I get excited just thinking about them. I'm anxious for the day when the computer and I will talk to each other and it will have the voice of maybe Robert Redford. Bob wouldn't mind the voice of Jacqueline Smith. Or am I dreaming? I don't think so. As for now,

I'd like to write future articles - thanks, Mr. Totty. Soon, I hope to run a Bulletin Board System of my own. And then, of course, I'll need a new computer system to play with and enjoy (mischievous smile).

There are still things I'd like to say, but I can write again. As for me, the question "Why do you want a computer?" is answered with two words - fun and learning. It's a terrific hobby, a teacher of logical thinking, and a companion during sleepless nights. It doesn't eat or drink, waits patiently for your input, and can be turned off or on at the flip of a switch. I think, when nobody's lookin', I'm gonna give it a hug!

THE HALLEY PROJECT:

A Mission In Our Solar System

Mindscape, Inc.

Reviewed by P.R. Wheeler

Very seldom do you find a game program that is educational and still maintains all of the FUN aspects. Well, THE HALLEY PROJECT is just such a program. It will provide many hours of entertainment long after the comet has come and gone until it's next return.

First, the packaging is superb. It comes in hard cover book form jacket that contains all the star maps, a TOP SECRET dossier, and a cassette that provides audio instructions as to the purpose of your mission - all of this being provided by P.L.A.N.E.T. (Planetary and Lunar Aerospace Navigation and Exploration Team).

So as not to take away the fun of experiencing all the challenges of the game, I will only briefly describe the details. There are 10 ranks that you must advance through in order. You will not be permitted to skip steps; however, you can redo missions to improve your time.

The program is capable of storing ratings of all ten stages for 32 players and can clean the slate using the instructions provided. The top scores are shown at the beginning for the mission being played.

The graphics are broken down between your spacecraft's window and a long range radar screen. Flipping between these provides you information as to your whereabouts in the galaxy and other information necessary to complete your mission. The graphics of the stars and planets are awesome.

Be forewarned: better check your knowledge of the planets, moons, and stars, or be prepared for frequent trips to the library. For example, do you know which planet is always colder than Earth but is smaller? What moon is smaller than Titania? This is the type of information you will need to complete all ten missions.

Each time you boot up the program, you are in a different part of the galaxy. This makes it more interesting and challenging. When you have completed the missions and have gone from RAVEN to STARBIRD, you will be presented a secret code number. By mailing this number in to P.L.A.N.E.T. Headquarters you will received official certification and will qualify to participate in the final stage of The Halley Project. I have done so and am anxiously waiting for the final challenge, while I continue to improve my scores.

If I were to rate all the games I have played, this one would have to have a firm place as one of the top five. It is one I will continue to enjoy and learn from for a long time and I highly recommend it for all but the very young, but don't worry... it will still be around when they are old enough to play it.

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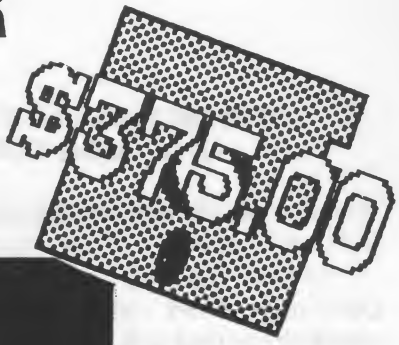

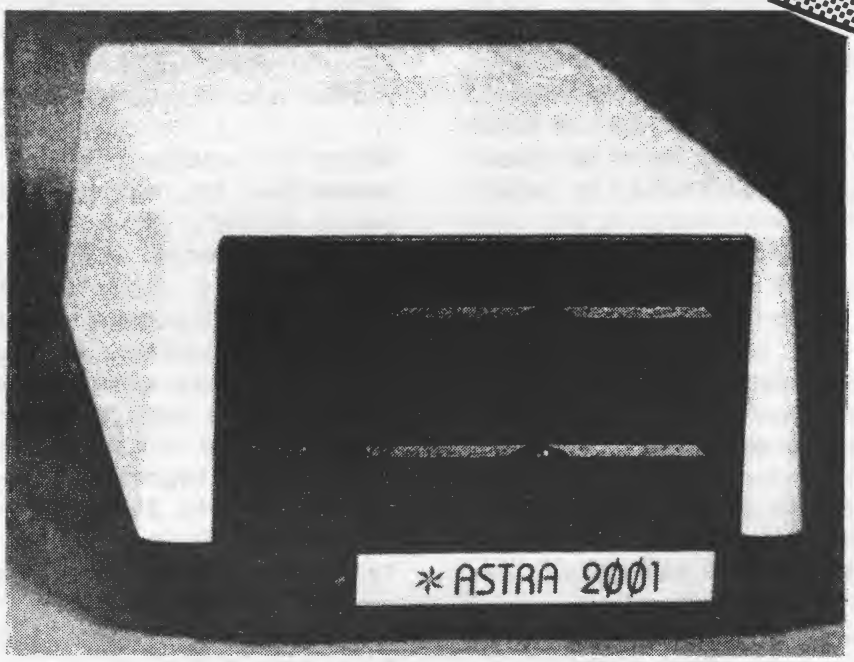

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SPELL MAGIC

Blue Collar Software

Reviewed by Russell Crum

Do you need an inexpensive spelling checker to use with your word processor? If you do, SPELL MAGIC may fill the bill. At $19.95 + $3.00 shipping, this program qualifies as inexpensive! (Well, at least reasonable.)

SPELL MAGIC is available from ANTIC magazine through their ANTIC ARCADE catalog now being included in each issue. It is a product of Blue Collar Software and is compatible with any ATARI DOS word processor, according to the catalog.

SPELL MAGIC comes with two disks. One is the program itself and the other is a 33,411 word (so it says) dictionary. Personal dictionaries may be created with up to 10,000 words each. The eight page documentation is contained on the flip side of the program disk.

Before using the program, it must be configured as to on which disk drive to expect your personal and main dictionary disks (they don't have to be the same). This configuration is stored on the program disk but may be modified at any time. The program is then self loaded into memory at computer power-up without BASIC (about 30 seconds). You are presented with a menu which allows spelling check, personal dictionary sort, personal dictionary printout, and basic DOS functions.

The spell check is initiated by a disk directory listing before you enter your file name. The drive used may be changed but the documentation neglected to tell you how. If you get this program, just use your backspace key to change the D1 prompt to D2 and cycle back to the menu.

Upon entering a file name, the text file is read and a total word count and unique word count are displayed on the screen. You are then prompted to insert your personal dictionary disk and press START (OPTION to omit). After the personal dictionary is read, the prompt appears to insert the main dictionary disk and press START or press OPTION to forget it. After pressing START, the main dictionary is read and compared with your text file.

When the spelling check is done, you are instructed to insert your text disk and press START. The text is then scrolled through a window at the top of the screen. The scrolling stops at each word that was not located in either dictionary with that word displayed in inverse video. At this point you may continue scanning (accept the word as spelled), make a correction, look in the dictionary or stop this silliness altogether (stop scanning). If you choose to look in the dictionary, a word must be entered to search on. The "*" wild card may be used for anything except the first letter. The lower portion of the screen will be filled with words from the dictionary most closely matching your requested word (25-40 words depending on their length). The right word cannot be selected and automatically entered. It must be typed in as a correction. The word list stays on the lower part of the screen, however, which I found nice. The next pages of the dictionary may also be examined in case your search word wasn't close enough.

Once you have completed the review of your opus, you have the option to save the revised text file back to disk. After saving the text (or not) you have the option to save the words not found to your personal dictionary disk. Each word must be accepted or rejected individually before it is written to the dictionary disk. A flaw that I noticed here is that a corrected word is still presented in its incorrect form. One note - your personal dictionary disk may also prepared and modified with any regular word processor.

Just how good is the program and dictionary? It is good but not very fast. My reviews of AtariWriter and Synchromesh were checked with SPELL

MAGIC. These contain 1056 and 900 total words respectively (at least before Ann edited them). They contained 398 and 330 unique words respectively. The Atariwriter article took 43 seconds to read and 5 minutes to check. The Synchromesh article took 31 seconds to read and 4 minutes 20 seconds to check. The dictionary found all but 22 words in the Atariwriter article and all but 28 words in the Synchromesh article. In each case I wouldn't have expected it to have 10-12 of those words (like my name, OSS, APX, etc.). That may also indicate just how limited my vocabulary is!! The only other 8 bit computer spelling checker I have used was on an Apple. That one operated at the speed of light compared to SPELL MAGIC! (Although I do think SPELL MAGIC is less cumbersome to use than that one was.)

The checking ignores upper/lower case and it appears to ignore single character words, numbers, and printer codes. Words with periods and hyphens are acceptable in the personal dictionary.

One problem that I have yet to solve is using the program with double density disks. I was assured by ANTIC before I purchased the program that it was compatible with any DOS. I was interested since I use double density most of the time. I found out when I substituted DOS XL for ATARI DOS on the program disk that the program would not boot. A call to ANTIC got me the program author's name and address. I am presently awaiting his solution.

Other than being slow, the program is quite useful and the dictionary more than adequate. I would recommend dual disk drives for much use of the program. With a single drive, a lot of disk swapping must be done. If you feel the need for a spelling checker at a reasonable price, this is one you should consider.

BASIC XE

Optimized Systems Software, Inc.

Reviewed by Claybore

OSS's BASIC XE, introduced in 1985 for the Atari 130 XE computer, is a major improvement over OSS's previously introduced BASIC XL. BASIC XE comes in a cartridge with an extensions file on disk named BASICXE.OSS. Like BASIC XL, BASIC XE has the SET commands, but OSS has added a new one. A SET sets a control register for the various functions such as automatic string dimensionin of undimensioned strings, whether a program is LISTed in upper or lower case, and the prompt character for INPUTs. For example, the command SET 0,1 will cause the pressing of the BREAK key to create an error 1 which you can TRAP. BASIC XE's new set is SET 15 which controls whether or not an error occurs when you find the address of a string constant. SET 15,0 produces an error 3 and SET 15,1 returns the address.

What all of you people are wondering is, "What about the 128K of memory?" BASIC XE allows 35K for variable memory and 65K for program memory with the use of the EXTEND command. If you PRINT FRE(0), BASIC XE will return the amount of space for variables and PRINT FRE(1) will return the amount of program memory available. Once one of your programs is extended and saved, you do not have to extend it again, but if you don't have the Extensions file booted up you can not load an extended program.

One of the major improvements of BASIC XL/XE over Atari BASIC is that they allow for true string arrays. When dimensioning one, it is as simple as a numeric array. For example, DIM A$(5,20) will dimensin an array named A$ with 5 elements each 20 characters long. To access the elements, you need a semicolon after the element number. PRINT A$(3;) will output the third element of A$, while PRINT A$(3;5,9) will output the fifth through the ninth characters of the third element. So what? So no more complicated substring formulas, no more worrying, "Is this the right position in the string?" and, to top it off, it allows for the use of the fastest machine language sort I have ever seen on a microcomputer. Unlike BASIC XL, BASIC XE has sort commands called SORTUP and SORTDOWN which sort in ascending and descending order respectively. For example, if you were to sort a numeric array of 3000 elements in ascending order you would simply type:

```
SORTUP ARRAY() USING 0 TO 3000
```

or you could type:

```
SORTUP ARRAY()
```

which would default to the whole array. Notice that you need the parentheses [()] to tell it it is an array. As you can see, the parameters after USING allow for sorting of one section of the array instead of the whole array, which makes the sort extremely powerful. If you want to sort a string array, there is little difference, but a little more of the sort's power shows through.

```
SORTDOWN ARRAY$ USING ;1,4
```

will sort all the elements of the string array (there are no parameters after USING and before the semicolon, so default is the entire array) using the first 4 characters of each element as a determining factor (that is the 1,4). The computer will sort all of the string array, but it will only look at the first 4 characters of each element. If you tried this statement:

```
SORTDOWN ARRAY$
```

the entire string array would be sorted using the entire string length to sort by. Obviously, if you use the ';' when sorting a numeric array, this will cause an error because the ';' is used to tell the computer which characters to look at, and a number is not a group of characters. I sorted an array of 3000 elements, and it took only 8 seconds! I also sorted a string array of

2500 elements each with 10 characters, and that took 15 seconds!

BASIC XL and BASIC XE have a very easy, convenient and spacesaving method of string concatenation. In the following example, I first show you the Atari BASIC statements, and then the BASIC XL/XE statements.

Atari BASIC:

```
A$(LEN(A$)+1)=B$:A$(LEN(A$)+1)=C$
A$(LEN(A$)+1)=" - "
A$(LEN(A$)+1)=CHR$(155)
```

BASIC XL/XE:

```
A$=A$,B$,C$," - ",CHR$(155)
```

As you can see, I effectively put four statements into one, and I could have gone further, but that is all that is necessary to make my point. Also, both BASIC XL and BASIC XE have the RENUM command, which renumbers the program in memory. Just type:

```
RENUM 10,5
```

and the first line is line 10, the next lines are numbered by 5's. If you type:

```
RENUM
```

the default values are 10,10. And hand in hand with RENUM, there is the DEL command, which deletes all the lines you specify.

```
DEL 100,200
```

will delete lines 100 thru 200 inclusive.

Both OSS BASICs have Disk Operating System (DOS) commands. The commands are:

```
ERASE Dn:filename.ext
RENAME Dn:filename.ext
PROTECT Dn:filename.ext
UNPROTECT Dn:filename.ext
DIR [Dn:filename.ext]
```

and BASIC XE has added these:

```
BLOAD filespec
BSAVE startadr,endadr,filespec
```

A major enhancement of the OSS BASICs is that you don't need the quotation marks around the filespec and you can put it in lower case, as long as you don't mix quotes and lower case. For example,

```
save d:program
```

is perfectly valid. No more forgetting the quotes! And, as they accept input in any character type (lower/upper case, inverse/normal), you can enter a program line in inverse lower case and it will be fine. Only string constants remain as you type them in.

Two powerful debugging tools contained in BASIC XL and BASIC XE are LVAR and TRACE. LVAR produces a list of the variables in order as they appear in the variable table, with all the line numbers on which each variable appears following that variable name. You can specify a destination filespec so that you can print it or save it to disk. If you type

```
LVAR D:TEMP.BAS
```

the variable table will be loaded off the disk and dumped to the screen (or printer) without erasing the program in memory. TRACE mode will output to the screen in brackets the line number which the program is currently executing. It is turned off by the command TRACEOFF.

There are many more functions that are very powerful like the built-in Player Missile graphics commands which allow you to skip all of the PEEKs and POKEs that it takes to create PM graphics. To cover all of the features of BASIC XE would take up this whole Journal. If you have any questions about BASIC XE you can call any of the N.A.T.O. BBSs or call my BBS, CENOTAPH ROAD, at (313) 855-9517 24 hours a day, located in West Bloomfield, MI. I would be glad to answer any of your questions.

GREETINGS FROM YOUR EDITOR...

Ahhh - the sweet relief of my LAST Journal! Not that it hasn't been fun, but I am looking forward to being able to use my computer for something other than writing, editing and graphics. I plan to stick around as an Assistant Editor (assuming my successor will have me), so you haven't heard the last of me, but the majority of the burden of producing this treasure each month will fall on someone else. Please give him or her the support that you have given me - and more. These past few months have seen quite a few submissions, and we all need them to continue if the Journal is to maintain its high quality.

I would like to thank everyone who has helped me this year: the people who wrote programs and reviews, those who sent in CompuServe material, and especially Carol King and her faithful crew of Journal distributors. Mike Lechkun's mailing of the Journals has been a big help, and Mike Mitchell's efforts as Advertising Manager have been a boon to my sanity these past few months. I get a lot of compliments on the Journal; a good share of the "fame and glory" belongs to everyone who has helped.

A few words about the Journal's "new look": last month we switched to 20 pound bond (from 60 pound offset) for the inside pages. This lowered mailing costs without decreasing the number of pages we could publish each month. The Journal may be thinner now, but it's no less full. (In fact, at 48 pages, this month's issue matches the record set by the June Birthday Issue.)

NEXT MEETING

Tuesday, October 22nd

THE OCTOBER MEETING WILL BE ON THE
FOURTH TUESDAY
INSTEAD OF THE THIRD.

MARK YOUR CALENDARS!!!!

DETROIT AREA BBSs

Compiled by Jim Kennedy
9/8/85

All BBS's listed operate on a 24 hour basis and are in the (313) calling area. An asterisk indicates 300/1200 bps service.

A.I.R. Port - Troy	641-8688
A.R.C.A.D.E. - Sterling Hts.	978-8087
Atari Castle - Dearborn Hts.	*278-3901
Atari Ethernet - Redford	531-1701
Anarchy	*656-2377
Atari Toolbox - Sterling Hts.	*247-0094
Atari Zone - Mt. Clemens	*792-7494
Back in the Saddle - Redford	531-1264
Baudville - Garden City	*525-5172
Baudway - Royal Oak	399-1775
Bunky's Board - Berkley	*546-3689
Business Line - Southfield	*569-0142
Clone (AT&T PC) - Detroit	*882-7104
Country Peddler - Whitmore Lk	*449-8544
Crazy House - Dearborn Hts.	*278-1727
Cutting Board - Taylor	*291-7766
Dart Board - Detroit	287-4824
Diskwiz - Utica	247-1828
Freedom Board - St. Clair Shrs	*771-4126
Heartbreak City	794-5962
Home Board - Royal Oak	585-2168
MACE EAST - Warren	*978-1685
MACE WEST - Dearborn	*582-0657
Rock Palace - Dearborn Hts.	*277-8632
Super Board - Royal Oak	*543-9805
Trading Post II	*884-4501
Trooper	*591-1521
U.S.A. - Hazel Park	*545-8593
Utility Room	981-1106
V.O.I.C.E.	532-8410

NEW PRODUCT!!

Atari has announced a new product for the 520 STs: the first completely mouse-driven word processor. OuijaWrite will let the user enter text without using the keyboard. Projected release date is early next April. Future mouse-driven software will include OuijaCalc, OuijaCom and OuijaTrend.

ASSEMBLY LANGUAGE COURSE
FOR WORLDWIDE USERS NETWORK

By Chris Crawford

LECTURE THREE - 7/08/85
LOGIC

BOOLEAN LOGIC

A great deal of programming involves the use of Boolean logic. This is a standardized system for handling logical manipulations. It's sort of like algebra for logic. You must understand Boolean logic if you are to write assembly language programs, so let's get started.

Where algebra deals with numbers, Boolean logic deals with propositions. A proposition is just a statement such as "Fred eats worms." It can take only two possible values -- True or False. In our programs we seldom bother with broad and glorious propositions such as "Love is the universal language of truth" or "War is the extension of policy by other means". Instead, we normally deal with propositions such as "The joystick trigger has been pressed," or "There is a diskette in the disk drive."

When we use Boolean logic with a computer, we may think in terms of true and false, but the computer is actually working with 1's and 0's. We use the following convention: a 1 corresponds to a Boolean value of "true", while a 0 correspons to a Boolean "false".

Using this system we can represent propositions inside the computer. However, programming requires more than the mere representation of data; we must also be able to manipulate that data. This brings us to the Boolean operators. There are four common Boolean operations necessary for most programming practices:

Not

This is the simplest of Boolean operators. It takes a single Boolean value as an input and produces as its output the logical converse of the input. Thus, a true input yields a false output, while a false input generates a true input.

Or

This Boolean operator takes two Boolean values as its input and generates a single Boolean value as its output. The value of the output depends on the values of the inputs according to the following rule: If one input is true OR the other value is true, then the output is true. Otherwise, the output is false.

And

This Boolean operator is just like the or-operator, except that it uses a different rule. Its rule is: If one input is true AND the other input is true, then the output is true; otherwise the output is false.

Exclusive-Or

This Boolean operator is just like the or-operator, except that its rule is: if one input is true, OR the other input is true, BUT not both are true, then the output is true; otherwise, the output is false.

When we use the 6502 for Boolean operations, you must remember that the operations are eight bits wide. Instead of working with one bit at a time, we use all eight bits of a word in parallel. The bits in a byte are independent and do not affect each other in any way -- at least as far as Boolean operations are concerned.

The 6502 has three instructions for performing Boolean operations. These are AND, EOR, and ORA. The first performs an and-operation. For example, consider the following code:

```
LDA   FISH
AND   GOAT
```

This will first Load the accumulator with the value of FISH. It will then And the contents of the accumulator with the contents of GOAT. The result of the and-operation will be left in the accumulator.

The AND-instruction can use an immediate operand if you desire, just as the ADC-instruction can.

The EOR-instruction provides the exclusive-or operator. It works just like the AND-instruction. The ORA instruction provides the or-operator in just the same way.

If you wish to obtain the NOT-operation, just use EOR #$FF; this will invert each bit in the accumulator. Because NOT is so easily reproduced with EOR, there is no special NOT instruction in the 6502.

APPLICATIONS OF BOOLEAN LOGIC

If you have any sense at all, you are probably asking, "What good is all this Boolean nonsense? What would I use it for?" Four applications are available:

Program Logic

Many times our programs encounter rather complex logical situations. The program must be able to load a file; if the FMS is in place and there is a diskette in the disk drive, and the diskette has the file we are looking for, or the file specification calls for a cassette load, then we will load the program. Many programming problems involve such Boolean operations. Keeping them straight is certainly a headache.

Masking Bits

Sometimes we need to isolate particular bits in a byte. For example, in Eastern Front (1941) I used the character value to store the unit type. The color of the unit was encoded in the upper two bits of the byte, the type in the lower six bits. If I wanted to get only the unit type, I had to mask out the upper two bits. This I did with the following code fragment:

```
LDA   UNITCODE
AND   #$3F
```

The AND-instruction eliminated the upper two bits, leaving me with just the unit type. Bit-masking like this is useful in many situations. We use it frequently when we pack bits into a byte to save memory. It is also handy with input handling. If you want to read the joystick port, you frequently mask out the bits in turn to see which is active.

By the way, you mask out bits set to 1 with the AND-instruction. You mask out bits set to 0 with the ORA instruction. The logic is reversed.

Setting and Clearing Individual Bits

We also use the AND and ORA instructions to set or clear individual bits within a byte. This is most often useful for handling arrays of flag bits.

Folding Bytes Together

This little fragment of code will fold bytes together:

```
LDA   FISH
EOR   GOAT
AND   MASK
EOR   GOAT
STA   ANSWER
```

This is a magical piece of code. See if you can figure out what it does. Experiment with two values of MASK: $OF and $FO.

SHIFT AND ROTATE INSTRUCTIONS

The 6502 also has instructions that allow you to shift the bits around inside a byte. The first of these are the shift instructions. One, ASL, shifts a byte to the left; the other, LSR, shifts a byte to the right. Thus, the byte %01101011, when shifted left, becomes %11010110. Each bit is shifted one position to the left. The leftmost bit is rudely pushed right out of the byte and falls away ("Aaaaaaarrrrgggg-gghhhhh!"). A zero is shifted into the

rightmost bit. The LSR instruction does the same thing in the opposite direction.

Note that ASL also doubles the value of the byte, while LSR halves it. Two ASL's multiply by four; three multiply by eight. This makes it easy to do simple multiplication, but be careful with round-off error here. What happens if you try to multiply by 256? What do you get if you halve 3?

A variation on the shift instructions are the rotate instructions. There are two: rotate left (ROL) and rotate right (ROR). These function just like the shift instructions, except that the bit that gets shoved into the bottom is not necessarily a zero; it is the contents of the Carry bit. The bit that gets pushed off the edge of the byte goes into the Carry bit, so it is not lost. Thus, if you rotate either way nine times, you'll be right back where you started. Rotate instructions are a handy way to get a particular bit into the carry bit where you can work on it. Conversely, once you get your desired bit into the carry bit the way you want it, you can put it back into a byte with some rotate instructions.

INCREMENT AND DECREMENT INSTRUCTIONS

The last instructions I will cover are the increment and decrement instructions. These allow you to add one (increment) or subtract one (decrement) from a memory location. These are not considered to be arithmetic operations so they do not affect the Carry flag, nor are they affected by it.

You cannot increment or decrement the accumulator, only RAM locations.

M. A. C. E.

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